

17
MARINE CORPS SCORE BOOK

—AND—

RIFLEMAN'S INSTRUCTOR

FOR THE NEW SPRINGFIELD RIFLE

THIRD EDITION

Revised for Use Under the 1913 Firing Regulations

Issued to _____

For Use with Rifle No. _____



The Marine Corps Cup

This Cup was presented to the National Rifle Association of America, by the officers of the Marine Corps and is competed for annually in an individual match, called the Marine Corps Match, during the matches of the National Rifle Association.

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Rifle and Sights—Any Military.

Ammunition—Any.

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U. S. MARINE CORPS SCORE BOOK

— AND —

RIFLEMAN'S INSTRUCTOR

BY

MAJOR WILLIAM C. HARLLEE

U. S. MARINE CORPS

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The Marine Corps Score Book

A Rifleman's Instructor

For use in Army, Navy, Marine Corps, National Guard, Naval Militia, Schools and Civilian Clubs.

For beginners, advanced riflemen and rifle teams. For self-instruction and for use in instructing others.

It is the boil-down of the shooting game. Its contents are the digest of range practice and experience. Everything in it is practical, easy to learn and easy to teach. It is the last word in accuracy of the art of shooting, instructing and range service.

Supply it to your Company, Club or Team. It will save you labor. Your men will then instruct themselves. Your subordinates can teach it. It will produce results for you with the minimum of work.

Adopted by the War Department and issued by the Ordnance Department to organizations of the Army, and to the Organized Militia (under Sec. 1661 R. S.), and for sale to educational institutions (Bulletin No. 12, 1916, and G. O. No. 1, 1916).

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INTRODUCTION.

The Marine Corps Score Book was originally prepared as a text for instruction in the Marine Corps, to be used by individuals for self-instruction, and to be used in squad or company schools.

Every feature of the book is the result of the developments of practical and extended experience in instructing beginners and in the more advanced work with skilful riflemen.

The kindly reception given it by riflemen generally and especially by officers of the Army and of the National Guard has justified adapting the book to the needs of all the services.

It has been adopted by the War Department (Bulletin No. 12, March 28, 1916), for issue to organizations of the Army (Requisition), to the Organized Militia (Requisition under Section 1661 R. S., and sale for cash, Act of Congress, January 21, 1903), and to educational institutions (Sale for cash, Act of Congress July 17, 1914). The War Department (Bulletin No. 16, April 20, 1914), authorizes the Ordnance Department to issue it upon requisition for enlisted men of the Army, and refers to its issue in General Order No. 1, January 3, 1913, paragraphs 3 (a) and 8 (e).

The Navy Department (Naval Instructions, Article 3674 [6] [t] and Article 3676 [3] [c]) has adopted it as a text for the examination of Marine officers for promotion, and (G. O. 167, paragraph 22, November 1, 1915, Marine Corps Price List) authorizes the issue of one for each man annually.

The book is also used as a text by military schools and colleges, training camps (including the Plattsburg training camp), and by civilian riflemen generally.

The author is indebted to his co-workers of all grades in the Navy and Marine Corps and to his associates in riflemen work in the Army, National Guard, and civilian life for their help in developing methods suggested in this book.

TABLE OF CONTENTS

	Page		Page
Title Page	1	Long Distance Practice	62
Introduction	3	Practice with Telescopic Sights	63
Table of Contents	4		
Methods of Instruction	5		
Gallery Practice	7		
		PART III.	
PART I.		200-Yard Score Pages	64
Parts of the Rifle	9	300-Yard Score Pages	66
The Care and Cleaning of the Rifle ..	10	500-Yard Score Pages	68
Army Qualification Course	12	600-Yard Score Pages	72
Estimating Distance	14	Rapid Fire Score Pages	78
Dimensions of Targets	17	800-Yard Score Pages	92
O'clock of Hits	18	1000-Yard Score Pages	96
Force and Direction of Winds	19	Index of Conditions	102
Sight Setting	20		
Aiming or Sighting	22	PART IV.	
Holding the Rifle	25	Extracts from Small Arms Firing Regu-	
Remark on Firing in All Positions ...	36	lations, U. S. Navy, 1917	104
Zero of Rifle	38		
Windage and Elevation	39	PART V.	
Keeping the Score Book	42	Special Course A	129
Range Duties	45	Special Course When Time or Facili-	
Score Takers Record, Army Qualifica-		ties for Regular Courses Are Not	
tion Course	55	Available	131
PART II.		APPENDIX.	
The Micrometer or Vernier	56	Cleaning Rack and Cleaning Rods	138
Notes on Shooting	57	Removal of Metal Fouling	139
		The Swinging, or Pendulum Target ..	141

METHODS OF INSTRUCTION.

An effort has been made to make this book easy and clear to the beginner, so that if it is distributed among men they can use it to instruct themselves; and many men anxious to qualify, do this without any further attention. But some men are not so diligent, and the book is designed also to be taught in squad or larger schools.

The methods of instruction are stated precisely, so that it can be readily taught, and that merely following its guidance will secure thoroughness.

Men should be thoroughly schooled in Part I before they go to the range, so that the maximum amount of work can be done on the range efficiently and the men removed from their stations and duties the minimum amount of time.

There is no time at ranges to give this preliminary training, nor sufficient instructors for more than firing-line coaches. When men come uninstructed the work does not run smoothly, and the best coaches cannot make up for poor preparation.

Things which tend to elaborate have been omitted in Part I. For instance, no reference is made in Part I to the fact that an allowance of $\frac{1}{4}$ of a point of windage is made for effect of shadows, when sun shines upon the sights. Too many considerations would make such things as the zero of the rifle and the windage rule difficult for beginners. The sun condition involving only $\frac{1}{4}$ point or 1 inch for each 100 yards of range, can be borne in mind by the instructor himself in deciding the windage or zero for a man. Generally there is doubt, for instance, whether the windage should be $\frac{1}{2}$ or $\frac{3}{4}$ right; if the sun is from the right, make it $\frac{3}{4}$ right; if from the left, make it $\frac{1}{2}$ right.

If gallery practice is held, it should be preceded by thorough instruction in aiming, holding, and in the principles of firing in all positions.

Before a man goes on the range to fire, three things are absolutely necessary. He must know,

(1) How to set the sight.

(2) How to sight or aim.

(3) How to hold the rifle in all positions and the general principles for all shooting, such as squeezing the trigger, not canting the rifle, etc.

If he does not know these things it is worse than useless for him to fire. He will not improve and the more he shoots the worse he will shoot and it will become more difficult to teach him.

It is not sufficient to merely tell him or show him these things, he must be required to do them himself and to show his instructor that he thoroughly understands them.

Thoroughness in the instruction of riflemen is absolutely necessary, and while it may all seem simple after it has been learned, it is a mistake to presume that the inexperienced man knows anything about the rifle or how to use it.

No matter how much instruction an inexperienced man has had, much of it will be neglected in the excitement of range work, and a coach should always be assigned to each firing point when beginners are firing. Even in record practice a supervisor should be present at each firing point to see that regulations, safety precautions, etc., are observed and that the work is expedited.

Part III is intended for information of men who have become familiar with Part I and who have had some experience on the range. It would be a mistake to teach Part III to beginners before they had had any experience in firing on range.

A 6 ft. x 6 ft. black board with rings, like the target B, is extremely useful in giving the instruction outlined in this book.

GALLERY PRACTICE.

Gallery practice is a continuation of the preliminary training of holding and aiming. It is the stage in the progressive course between the position drills and the range practice with the service cartridge.

The interest of men under instruction soon diminishes with no other stimulant than simulated fire or snapping. The possibility of recording results of instruction by the hit carries the interest further. It incites competition and exposes inattention. It gives the instructor further opportunity to observe the individual and to correct his faults in detail. It records certain faults such as an incorrect understanding of the line of sight, canting the rifle, faulty trigger squeeze, and should serve as a final test of preparation for the range, for certainly men who are not able to hit under the easy conditions of the gallery will not do so on the range. Men who have not yet learned the elementary principles necessary to qualify in the gallery will not improve during range practice. Their advancement is liable to be delayed because, not knowing how to hold, they may become gun shy and discouraged in their work by their failure to make good hits.

Careless gallery practice does no good. In fact, it may do injury, for with the lack of recoil in the reduced charges men may acquire habits of holding which are all right for the reduced charge, but which will be faulty and make them gun shy when they advance to the service load. All gallery practice should be under a competent instructor at each target, who must be sure that careless habits of holding will not be formed.

Gallery practice having for its object only a means of teaching the elementary principles, nothing is gained by requiring it to be done at more than one distance. Fifty feet is the maximum distance at which the hit is plainly visible to the firer. Practice at longer distances introduces inconveniences and delays without offering any benefit in return. All the different positions and holds can be practiced from one point quite as

well as from several. The sights of each rifle should be correctly set and tested by the instructor, so that the hit will be in the bull's-eye.

In the Marine Corps "gallery practice is a preliminary instruction. It is not taken into account in deciding range qualification and no entry of gallery scores or gallery qualifications will be made in the service record. No report of gallery firing is required."* The course and the methods to be used are left to the discretion of the commanding officer or officer charged with the preparation of the men for the range. The course should include firing in all positions at 50 feet, and the necessary score for gallery qualification should depend on the size of the target.

Gallery practice in turn becomes tedious, and after men have qualified in the gallery, they and also men who are marksmen, may well be excused from practice unless the interest is sustained by competitions or by other means.

A gallery, strictly speaking, is an indoor short range. The expression has come to include outdoor short ranges. In fact, in good weather an outdoor gallery is quite as good as an indoor gallery. It is desirable, but not necessary, to have it in the lee of a building or fence, and to have it in a shady locality, such as on the north side of a building. The construction of a gallery is a very simple matter. It simply means putting up an iron or paper target in a safe place. If a bullet stop is desirable a suitable one may be made of packing boxes filled with earth. Iron targets are furnished. If none are on hand, paper targets may be used, and if regular targets are not available, they may be made from plain paper.

*Navy Instructions, I 3707.

PART I.

PARTS OF THE RIFLE.

Every rifleman must know the names of the parts of his rifle. Take your rifle and locate these parts; get an experienced man to show them to you.

Only the parts usually mentioned on the range are included.

Barrel—muzzle, breech, chamber, bore, lands, grooves.

Receiver—magazine opening, clip slots, bolt stop.

Bolt—handle, sleeve, sleeve lock, firing pin, comb (or knob) of firing pin, firing pin sleeve, striker, main spring, extractor.

Ejector—Safety Lock—Trigger Guard—Floor Plate—Floor Plate Catch—Magazine Spring Follower—Cut off—Sear—Sear Spring—Trigger.

Front Sight—front sight stud, front sight movable stud.

Rear Sight—base, movable base, windage screw, sight leaf, slide, binding screw, drift slide, peep, open sight notches, battle sight notch.

Stock—butt, toe of butt, heel of butt, small of stock, comb of stock, balance, grooves, hand guard.

Butt Plate—Butt Plate Cap—Butt Swivel.

Upper Band—bayonet lug.

Stacking Swivel—Lower Band—Lower Band Swivel—Lower Band Spring.

Bayonet—pommel, guard, scabbard catch, bayonet catch, grip.

Instructors should point out name and explain each part and its use; remove, dismount and re-assemble bolt, floor plate, etc. Then cause men to (1) remove, dismount and re-assemble bolt, floor plate, etc.; (2) point out each part as it is named, and (3) name each part as it is pointed out.

THE CARE AND CLEANING OF THE RIFLE.

Unless a rifle is cleaned and cared for properly it promptly becomes useless so far as accurate shooting is concerned.

Rifles must never be cleaned from the muzzle. Wearing or injuring the muzzle destroys accuracy. Any other injured part can be replaced by a spare part, but to injure the muzzle absolutely destroys accuracy. Remove the bolt and clean from the breech.

A cleaning rack should be provided at all ranges and at all barracks, and placed either in the squad rooms, or in halls or porches of barracks, or at other convenient and accessible places so that the best way to clean will be the easiest way, and so that men will form the correct habit. If there are no cleaning racks provided, place a piece of board or paper on the floor, and rest the muzzle on it when you clean.

After shooting there are three kinds of fouling.

1st. A black fouling easily removed by a cleaning rag.

2nd. A sticky fouling which you cannot see and which oil will not remove. It is acid in its nature, and must be removed by alkaline materials such as ammonia on a rag or a solution of crude soda, or soapy water pumped back and forth through the bore. When these are used they must be removed from the bore immediately, otherwise they will cause rust. They can be removed by pumping clear water through the bore. The bore is then dried and oiled. A mixture of equal parts by measure of amyl-acetate, sperm oil, acetone and turpentine is usually provided at ranges, and this serves not only to remove the fouling, but also as a rust preventive, and as an oil, and is the safest and best thing to use, as it never does the rifle any injury.

Hoppe's No. 9 is an excellent all-around, cleaning material. It removes acid fouling, and when bore is coated with it, instead of oil, it counteracts the effects of "sweating."

After being fired a rifle must be cleaned daily for several days,

because the bore sweats, and the daily cleanings should be continued until rags run through the bore come out clean. Otherwise a bore is sure to rust, no matter how much oil is put in it. Then it requires only to be occasionally cleaned and oiled. If it is to be laid away it should be oiled with heavy oil such as cosmoline (vaseline), or gas engine cylinder oil.

3rd. Metal fouling. The ammunition now issued gives very little trouble from metal fouling. In fact, very few rifles are troubled with it at all.

The "ammonia dope" used to remove it should be handled only by experienced men. The improper use of it will spoil a rifle. Should an occasional rifle require treatment for metal fouling, the formula for the "dope" and instructions for its use can be found in the latter part of this book.

The cloth of ammunition bandoleers makes excellent cleaning rags. It should be cut into pieces about $1\frac{1}{2}$ inches square.

It is not necessary to clean between strings while on the range, but the rifle should be cleaned as soon as you leave the range. Clean before you eat, noon and night.

If properly taken care of the shooting qualities of a rifle improve the more a rifle is fired, up to several thousand rounds.

An experienced man should be stationed at the cleaning rack to supervise cleaning, and supply cleaning material. What is not inspected is neglected, and the system should provide for the inspection of rifles when men are assembled to go to the range, and daily for at least a week after the rifle is fired.

ARMY QUALIFICATION COURSE.

Instruction Practice.							
Range	TABLE 1. SLOW FIRE (Peep Sight recommended) Target A. 200 & 300; B, 500 & 600.	Score	TABLE 2. SLOW FIRE Battle Sight. — Target D.	Score	TABLE 3. RAPID FIRE. Battle Sight. Target D.	Score First String	Score Second String
200	5 Prone—5 Kneeling—5 Standing		10 Kneeling		10 Kneeling from standing 1 minute		
300	5 Prone.....5 Sitting.....		10 Prone		10 Prone from standing 1 minute, 10 seconds		
500	10 Prone		10 Prone		10 Prone 1 minute, 20 seconds		
600	10 Prone (sand bag rest)		Total		Totals		
Total			Aggregate, Tables 1, 2 and 3, (both scores)				
Table 3 will be fired twice, but on different days for instruction							
Record Practice.							
Range	TABLE 4. SLOW FIRE. (Peep Sight recommended) Target A at 300, B at 500 & 600.		REQUIREMENTS.		Range	TABLE 5. RAPID FIRE. Battle Sight, Target D.	Score
300	5 Sitting 5 Kneeling		Expert Rifleman	253	200	10 Kneeling from standing 1 minute	
500	10 Prone		Sharpshooter	238	300	10 Prone from standing 1 minute, 10 seconds	
600	2 S. S. and 10 Prone Sand bag rest		Marksman	202	500	10 Prone 1 minute, 20 seconds	
			First-Class man	177	Date completed		Total
Total			Second-Class man	152	Qualification		
			Aggregate, Tables 4 and 5.				

Sand bag rest either back of hand or rifle must rest on sand bag

All men who fail to qualify as second-class men or better and those who for any reason did not fire the course and are not otherwise classified are *unqualified*.

Recruits and those who in the last season of practice failed to qualify as marksman or better will fire tables 1 and 2 once through and table 3 through twice, before firing record. Additional instruction practice may be given such men as may need it.

Men in the grade of marksman will fire through tables 1 and 2 once each and table 3 twice, and no more before firing record practice.

Sharpshooters will fire in one season in instruction practice not exceeding 130 rounds of ammunition before firing record practice.

Soldiers of the grade of marksman or better who have been discharged and re-enlisted, will begin the new enlistment period with the course of firing prescribed for marksmen.

An officer or soldier fires qualification practice for record only once each year. This applies to men who are discharged and re-enlisted in the same year.

1345. (Army Regulations, Changes No. 43, July 24, 1916.) An enlisted man who qualifies hereafter as an expert rifleman is entitled to \$5 a month, as a sharpshooter to \$3 a month, and as a marksman to \$2 a month, in addition to his pay, from the date of qualification until the next opportunity to requalify, or for one year if no opportunity for requalification is presented within that year, provided that during that time he does not attain a higher qualification and that he continues to be a member of an organization armed with the rifle, in which qualification is authorized, or re-enlists in such organization within three months from date of discharge therefrom. This provision applies also to a soldier who re-enlists within three months after receiving an honorable discharge from the Marine Corps while holding a qualification as expert rifleman, sharpshooter, or marksman therein.

* * * * *

ESTIMATING DISTANCE.

		PRELIMINARY PRACTICE Any number of preliminary trials may be given					SECOND PROFICIENCY TEST					
							Date					
Estimate						Average Per Cent.						Average Per Cent.
True Distance												
Per Cent.												
		FIRST PROFICIENCY TEST					THIRD PROFICIENCY TEST					
		Date					Date					
Estimate						Average Per Cent.						Average Per Cent.
True Distance												
Per Cent.												

The proficiency tests should be preceded by ample preliminary practice.

Not more than three record proficiency trials will be given, and should the soldier fail three times to make the required percentage, his final qualification will be reduced one grade below that obtained in firing.

Proficiency for the expert rifleman and for the sharpshooter will consist in making five consecutive estimates, with an average degree of accuracy of 90 per cent.

Similarly, for proficiency marksmen, first-class men and second-class men are required to make in five consecutive estimates an average degree of accuracy of 85 per cent.

The objectives will be natural objects, men or silhouettes. The distances will be from 530 to 1200 yards, and five distances are estimated for each test. After the distances have been estimated the true distance is announced.

Estimating distance is a most valuable exercise. There are few other kinds of training that give more fruitful results for a small amount of effort. Untrained men have very poor conceptions of distance, but they acquire proficiency with very little practice. Past methods have seemed so laborious and opportunities so limited that but little attention has been given to this important training. The following methods have been found to be expedient and practicable:

Measuring distance by chain is slow and tedious. An improvised chain is difficult to improvise and inaccurate. As a substitute for chaining, pacing is accurate enough, and is easily done.

A pace is 30 inches or $2\frac{1}{2}$ feet. Twelve paces are 10 yards. One hundred and twenty paces are 100 yards. Men march 100 yards in 1 minute and 10 yards in 6 seconds. School men in this data, ask little mental problems like these: How many yards are 60 paces? How many paces in 150 yards? How many yards are marched in $2\frac{1}{2}$ minutes? How long does it take to march 870 yards?

Men frequently lose count in counting paces. For that reason measuring by time is expedient, or if the pacers are to count their paces the instructor can roughly verify it and prevent gross error by noting time used to travel the distance. Men pace more accurately in squads in step than they do individually.

For estimating distance practice and tests take five men besides the estimating party. If there is only one line such as a street on which to estimate, give the leader of the pacing squad a list such as 600, 640, 920, 1080, 1150, and instruct him to drop one man at each distance, 600 and 1150 on the right of the street, 640 and 1080 on the left and 920 in the middle of the street. Or instruct him to drop, without interrupting the march, the first man in 6 minutes; second, 6 minutes 24 seconds; third, 9 minutes 12 seconds; fourth, 10 minutes 48 seconds, and halt himself in 11 minutes 30 seconds.

Nothing is gained by preventing the estimating squad from observing the march of the pacers. It is better that they should observe the pacers take their stations, because much time and annoyance in pointing out the objective is thus saved. If any man is resourceful and enterprising enough to apply his knowledge of the relation of number of paces and of time to distance he has made, the progress that this exercise aims to accomplish. His observations, however, should not be communicated to his less observant or attentive comrades, and to

insure that each man gets the benefit of this exercise *the estimators should be deployed, kept silent and forbidden to communicate with each other until they have given in their estimates.*

Call up each man separately and record his estimate of each of the distances, cause him to record his estimates and then send him to the group of men whose estimates have been recorded and cause him to record the true distance under his estimates.

When all five distances are in one line it is too easy to qualify, as men know that all distances are between 530 and 1200 yards. The record proficiency tests should avoid this. If no better conditions can be found, move from point to point and estimate no more than three distances in any line.

It is seldom, even in the streets of cities, where points with several distances radiating from them cannot be found, and when possible the pacers should take different directions. Where two or more are pacing in the same direction, cause them to march together in step until each arrives at his station.

A convenient method of computing percentage is to place two ciphers after the difference between the true and estimated distances, divide this by the true distance, disregard fractions to compensate for inaccurate measurement and call the result the percent. of error. Average these five and subtract the average from 100, which will give the average degree of accuracy.

Very little is gained by giving men instruction as to effect of conditions on estimating distance. They seldom retain it, it confuses them and they acquire better those considerations unconsciously incidental to the exercise. It is well to know, however, that sound travels 366 (the number of days in a leap year) yards per second. When you see the flash of a gun count *one, two, three, four,* etc., just as the step is called in marching, or as the clock ticks. Each count is one-half second.

DIMENSIONS OF TARGETS.

Target A
Short Ranges
200 and 300
Slow Fire



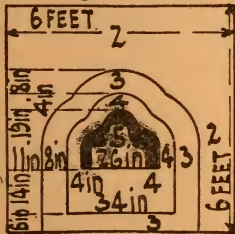
Target B
Mid Ranges
500 and 600
Slow Fire



Target C
Long Ranges
800, 1000 and 1200
Slow Fire



Target D	All Ranges
Battle Sight	Rapid Fire

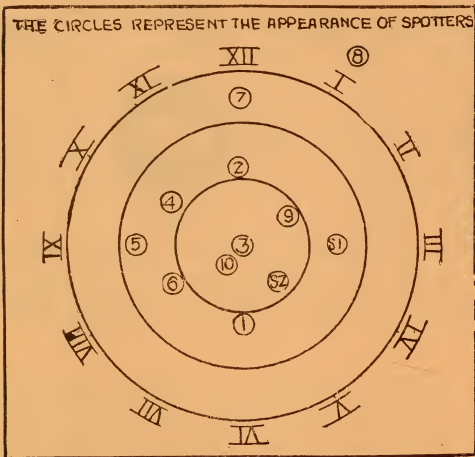


Notice that the rings of all the bull's-eye targets are about nine inches apart. This is not exact, but it is easy to remember.

What is the height of all targets? Width of each? Diameter of each bull's-eye? Average space between rings of bull's-eye targets? Width of side rings of target C? Width of figure D? Height? What are the two short ranges? Mid ranges? Long ranges? What sight is used in firing at target D? At the bull's-eye targets? Ans. The peep sight, because it is more accurate and easier to use.

O'CLOCK OF HITS

Imagine a clock face on the target. Hits are then spoken of according to the o'clock of hits.



Use a target or something to represent a target with its rings. Indicate location of hits, illustrating all the different o'clocks and expressions, and require men to designate them.

The following explains how hits on the target are usually designated:

S1 Is a 4 at 3 o'clock half way out.

S2 Is a 5 at 5 o'clock well out.

1 Is a 4 at 6 o'clock. It is hanging on the bull.

2 Is a 4 at 12 o'clock. It is sitting on the bull.

3 Is a 5-pin wheel.

4 Is a 4 at 10 o'clock close in.

5 Is a 4 at 9 o'clock well out.

6 Is a 4 at 8 o'clock. It is a wart. (1) and (2) are also warts.

7 Is a 3 at 12 o'clock.

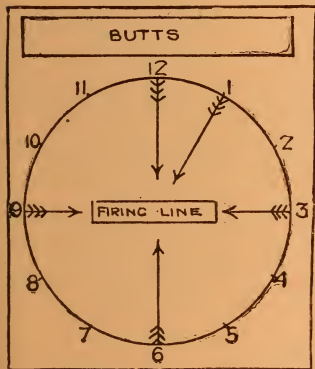
8 Is a 2 at 1 o'clock.

9 Is a 5 at 2 o'clock. It is a nipper.

10 Is a 5 close in at 7 o'clock.

FORCE AND DIRECTION OF WINDS.

The direction of wind is expressed by the use of the word o'clock. Imagine yourself on the firing line and in the centre of a big clock face, with the 12 towards the target. The arrows on the diagram indicate 1, 3, 6, 9 and 12 o'clock winds.



Direction of wind is judged by facing towards the wind or by throwing up grass, dust, etc.

A wind coming directly from the target is a 12 o'clock wind or head wind. A wind blowing directly towards the target is a 6 o'clock or tail wind. Both head and tail winds are called fish-tail winds.

The direction of winds is never steady and when the wind is from 11 to 1 or from 5 to 7, the slightest change in direction causes great effect in lateral deviation. Beginners will not have much luck at 500 yards or over in such winds, and it is better not to fire at 500 yards or longer range for record qualification, or even with beginners in instruction practice, because men will become discouraged and lose confidence in themselves, their rifles, ammunition and their coaches.

At 200 and 300 yards winds do not affect the bullet much, and at 200 yards it is easier to hold in the standing position in a head or tail wind than in a cross wind.

Winds from the firer's right as he faces the target are 3 o'clock winds; from the left 9 o'clock winds. These winds are called cross winds. Considerable changes in direction of cross winds

cause very little effect in lateral deviation of bullet, and even if they are strong winds they are good conditions for mid or long-range shooting.

Force of wind is expressed in miles per hour. The ability to estimate force of wind is easily acquired by practice. It is usually estimated by the feel of the wind in the face and by the appearance of flags. The rule for amount of windage to set on the sights is in another part of this book, but the best rule for beginners is to ask an experienced man.

Before beginning practice on a range the direction and force of wind and the amount of windage required should be announced to the firers, and attention called to changes.

SIGHT SETTING.

Learn how to set the sights on your rifle. **The numbers on the sight leaf refer to the lines below the numbers;** for instance, the figure 6 is above the 600-yard mark. Practice setting your sight, especially the peep sight until you understand it thoroughly. Get an experienced man to show you. Set your sights for every 25 yards, and be careful to estimate the distance between the lines accurately, for where there are no 25-yard lines you have to estimate where to set the sight, and the least error will make a big difference in the shot. Then learn to set your windgauge; **the marks on the windgauge are points and you will have to use quarter points in shooting.** You must estimate it accurately.

Remember that *the bullet is carried in the same direction that you move your windgauge.* Winds carry the bullet with the wind, therefore, *when you set your windgauge move it to the windward.*

Suppose you hit the target to the right of the bull's-eye, you would then move your windgauge to the left so that the next shot would be to the left of the first one. This is easy to remember, and is very important. **The bullet moves up or down with the elevation slide and to the right or left with the windgauge.**

Method of Instruction.

Simple as this may seem men do not know it without practice. Frequently men are found who have fired a season's practice and are still unable to set the sights.

The following method thoroughly done will "qualify" a man in sight setting. In giving the instructions vary the figures.

Select several of the men as assistants; as the sight is set each time, first inspect the sight of the assistants, then cause the men to pass through the line of assistants and have their sights inspected.

Have the peep sight set at a number of different ranges, as 600, 200, 1000, 250, 575, 625, 850, 975, 1125, 1275; set battle sight (see that the slide is moved to the bottom of the leaf); give several settings for open sight and triangle open sight, have windgauge set at zero;

1 right; 2 left; $1\frac{1}{2}$ right; $\frac{3}{4}$ left; $2\frac{1}{2}$ right.

Now explain that being at $2\frac{1}{4}$ right you wish the windgauge moved toward the right the amount of $\frac{3}{4}$ of a point (ans. 3 right):

Move $\frac{1}{2}$ left.....	(ans. $2\frac{1}{2}$ right)
Move $1\frac{1}{4}$ left.....	(ans. $1\frac{1}{4}$ right)
Move $1\frac{1}{2}$ left.....	(ans. $\frac{1}{4}$ left)
Move $\frac{1}{2}$ left.....	(ans. $\frac{3}{4}$ left)
Move $\frac{3}{4}$ left.....	(ans. $1\frac{1}{2}$ left)
Move $1\frac{1}{2}$ right.....	(ans. zero)

Have peep sight set at 550 yards, raise 50 yards (ans. 600); raise 125 yards (ans. 725); lower 50 yards (ans. 675); raise 75 yards (ans. 750); lower 150 yards (ans. 600).

Indicate the place where you are standing as the firing line and some other object as the target, then indicate a direction from which the wind is supposed to come; the windgauge being at zero, require the men to put on $1\frac{1}{2}$ points for the indicated wind; see that they set it on the correct side. Have sight set at zero again, indicate several other directions of wind (as 1 o'clock, 8 o'clock), and each time see that men put the windage given on the correct side.

Use a target or something to represent a target with bull's-eye, starting with the windgauge at zero, indicate a point to the right of the bull's-eye, have men correct one point for it (ans. 1 left), being at 1 left, indicate a point to the right of the bull's-eye and call for a correction of $\frac{3}{4}$ for it (ans. $1\frac{3}{4}$ left); indicate a point to the left, require correction of $1\frac{1}{2}$ points (ans. $\frac{1}{4}$ left); indicate a point to the left of the bull's-eye, require a correction of $\frac{3}{4}$ (ans. $\frac{1}{2}$ right); indicate a point to the right, require correction of $\frac{1}{2}$ point (ans. zero).

Starting with the sights at 600, indicate a point above the bull's-eye, change 50 yards (ans. 550); indicate a point below the bull's-eye, change 75 yards (ans. 625).

Continue exercise by indicating points requiring correction in both elevation and windage and have correction applied each time to the last sight settings.

If you have used an actual-sized target for your examples you will have incidentally conveyed some idea of the value of changes on the target at the range that you assumed

AIMING OR SIGHTING.

The Peep Sight.

When the battle sight is not required always use the peep sight. The peep sight is much more accurate and easier to use. You can never do very accurate shooting with the open sight, and its use among skilful riflemen, except at rapid fire, and skirmish, and other firing where the firing regulations require the battle sight to be used, has been entirely abandoned. Always use the peep sight in firing at bull's-eye targets.

There are three sizes of peeps, Nos. 4, 5 and 6. For the average man a number 6, which is the largest one, is the best. It is just as easy to centre the tip of the front sight in a large peep as a small one, and a large peep is easier to see through.



B—Is Bulls Eye
F—Is Front Sight

The Open Sight.

In using the open sight always hold the top of the front sight in the middle of the notch in the rear sight and even or flush with the top edge of the rear sight.

The battle sight is an open sight. It is supposed to be so constructed that at 530 yards you would aim directly at the figure, but you will find in practice that at 500 yards in order

With the peep sight always hold the tip of the front in the centre of the circle of the peep and let the bull's-eye sit upon it. It is not a good plan to leave a line of white between the bull's-eye and the top of the front sight. It is not correct to centre the bull's-eye in the peep and then hold the front sight under it; the tip of the front sight should always be in the centre of the peep.



OPEN SIGHT
Showing Aim Taken at Figure

BATTLE SIGHT
SHOWING AIM TAKEN AT
BOTTOM OF ENTIRE TARGET



to hit the figure you will have to aim considerably below the figure and still lower at the shorter range.*

Sighting In.

With the battle, sight, you will have to find out by actually firing how far below the target to aim at each range. This is "sighting in." Every rifle shoots differently, and you must fire your rapid fire with the same rifle you sighted in.

The instruction practice in the course requires slow fire at target D with battle sight at 200, 300 and 500 yards for this purpose, and when you have finished at each range, record on the score page the point aimed at, so that you will not forget it when you fire rapid fire.

Blackening the Sights.

If sights are bright there will be a glimmer about them, and you cannot aim accurately. They should be a dull dead black.

The sights are blackened by smoking them. A candle is the best thing, a match will do. Blacken both the front sight and the rear sight. The black will not take on metal if the metal is greasy. Rub off the oil; a rag dampened with gasoline quickly removes it. Candles or wax tapers are usually provided at cleaning racks or ranges. The oiled rags which have been used to clean rifles make an excellent smoke for blackening the sights.

Methods of Instruction.

Questions—When is the peep sight used? With peep sight, what is held in center of peep? At what part of the bull's-eye do you aim? With open or battle sight, what is the position of front and rear sights in aiming? If you should aim with battle sight directly at figure of target, where would bullet strike? In using battle sight, how do you find out where to aim? Do you aim at the same point at every range? How do you keep from forgetting where to aim at each range? If you find the point of aim for a rifle, will it be the same for every rifle? Why are sights blackened? Name the things used to blacken sights.

The instruction in sighting or aiming must be thorough. If a man does not know how to set or correct his sights that can be done for him, if he does not hold the rifle properly, it can be seen and corrected, but if he does not know how to aim properly there is no help for him.

*If rifles were provided with higher front sights this difficulty could be partly avoided. Higher front sights can be obtained and the sight should be changed, so that aim can be taken directly at the objective at 500 yards.

The steps in instructing men are as follows: Do this with peep, then with open sight.

1. Explain the manner of aiming.
 2. Place a rifle on a rest, aim it at something and show each man the aim.
 3. Require each man to explain the manner of aiming to you.
 4. Remove the rifle and require each man to replace it and aim the rifle himself.
- Then inspect it.

With battle sight require him to aim at several points, such as at the bottom of the figure, at bottom of entire target, and at a certain point below the bottom of target.

The instruction has for its object only to teach how to aim, and when once learned need not be repeated. It is a strain on the eyes and a waste of time and effort to continue by using movable disk, making triangles, etc. Such exercises are rarely taught properly and they often confuse men.

There is only one proper open sight. The others are improper. Avoid any reference to fine, half, full or coarse sights.

A box with a blanket or a barracks pillow on it makes an excellent rest for the rifle, better than a tripod.

Actual targets are better for teaching aiming than small posters. Use a B and a D target. Place them about 50 yards away. The fact that the tip of the front sight and not the bull's-eye should be centered in the peep will then be clearly demonstrated, because the large bull's-eye will at 50 yards appear distinctly above center of the peep.

If you cannot get actual targets, use an object about the size and shape of the mid-range bull's-eye.

NAVY METHOD OF AIMING.

The following is the method of aiming described in the Navy Small-Arms Firing Regulations.

88. In aiming, the eye should be held as close as possible to the peep; that is, almost up to the comb of the firing pin. Then aim so that the bull's-eye is exactly in the center of the peep hole and the top of the front sight in the center of the bull's-eye.

HOLDING THE RIFLE.

Padding. The elbows of both arms and the right shoulder of the shooting coat or blouse should be padded.

A coat is better than a woolen shirt for shooting. Padding will not injure a coat. The padding can be basted on and can be removed when the course is finished. Then you will not soil or wear holes in the elbows of the sleeves and your own elbows and shoulders will not become sore and cause you to flinch when you shoot; old bandoleers furnish a suitable material for padding. Be careful not to put the padding too high on the elbows; remember that the sleeves work up on the arm.

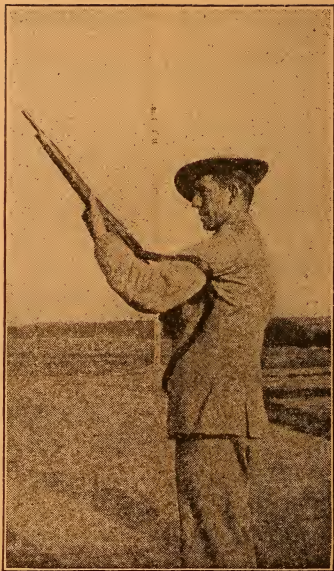
The Sling. The sling is used in all your firing. You cannot do good work without it, and you should never fire a shot without the assistance of the support of the sling. In all positions except standing the length of the sling should be such that the bight of loop comes even with the comb of the stock. Beginners will complain that this is too short, but it becomes easy after practice. If the sling is too long your position will not be steady and unless it is tight the rifle will kick. A piece of small rope about one inch long sewed on the inside of the left sleeve will prevent the sling from slipping down.

In all positions when aiming, the thumb of the right hand should be along the small of the stock, and not across it. If it is across the stock the recoil brings the thumb against the face or nose. The cheek or jaw must bear hard against the stock.

It is difficult to describe the various positions so that a man can take them without being shown. Examine the illustrations closely and get an experienced man to show you.



Slipping his hand into the loop, he starts his left hand through the right side of the strap.



The loop well in the arm pit, and the left hand well up to the lower swivel.

The Prone Position. The main secret of shooting prone is to get a good solid, hard hold. Then you cannot fail to make a good score. Nearly every man who is being taught to hold hard thinks at first that he will never be able to do so, but it is surprising how quickly it is learned. A few minutes persistent work on a man will teach him how to hold good enough to become a good prone shot. Prone is the very steadiest position and for that reason it is first taught a man, and it is a good idea to let him do his first firing at 500 prone, because there he will make a good score, will find that the rifle does not kick and will not hurt him, and he will get confidence in himself and his rifle.

The main points are: Slip the left hand well under the rifle and all the way up to the lower swivel. That part of the sling which bears against the hand should be clear of the metal nibs and of the keepers, because they will cut into the hand and cause pain. The pressure of the hand against the swivel causes a little pain at first, but it soon disappears, and a man should not resist it or try to pull his left hand away from it. **The piece rests hard in the flat of the hand and not on the fingers.** The left hand and the fingers of the left hand do no work at all. The fingers should rest loosely. If they are rigid the tremor will be communicated to the muscles of the left arm and to the rifle. **Lie flat down** at an angle of about 45 degrees to the firing line, **spread the legs** wide apart and **turn the heels inboard.** Flatten the middle parts close to the ground. Place the point of the left elbow to the front, and well to the right, otherwise you will have trouble in getting the rifle to the shoulder, then raise the right shoulder and placing the right hand on the butt plate, put the butt of the rifle in the shoulder, and flatten out again. Put your cheek or jaw hard against the small of the stock, the thumb of the right hand along and not across the stock and the right eye right up to the firing pin, as close to the peep sight as possible. Let the right elbow spread out as far as it will go and drawing the body back

get your chest and whole body as flat on the ground as possible. **The left elbow must be directly under the rifle.** The right elbow is moved out to raise and in to lower the muzzle. Now the rifle cannot kick you. The only recoil will be that of your whole body, which you will not feel. **In rapid fire or in skirmish keep the piece in the shoulder.** To load, lower the muzzle to the right, and work the bolt, being careful to draw it fully back, so it will eject the empty shell, and not cause a jam. You will be surprised how easy it becomes after practice.



Placing the butt in the shoulder.



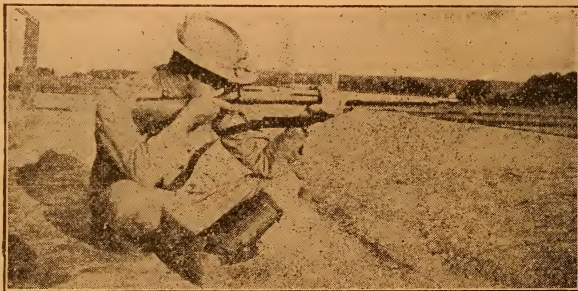
The prone position.



Operating the bolt; piece remaining in shoulder.

Sitting. This is a very comfortable and steady position.

There are more varieties in this position than in any other. Every man must find the position which fits him the best. The main points are to keep adjusting yourself until you find a position which fits you exactly, so that the **legs are at rest** and the **leg muscles not strained** in order to get the rifle up to the right place. **Lean the body well forward** in all the positions. Except in the one with the legs crossed, the point of the left elbow should be over the left knee and the **right elbow** in a snug place **inside the right knee**. Study the positions illustrated and especially the positions of the feet and elbows. Bear the jaw hard against the small of the stock. Keep piece in shoulder for rapid fire. .



FIRST LIEUTENANT W. D. SMITH. The point of his left elbow does not rest on his knee, the side of his elbow rests against the side of his knee.



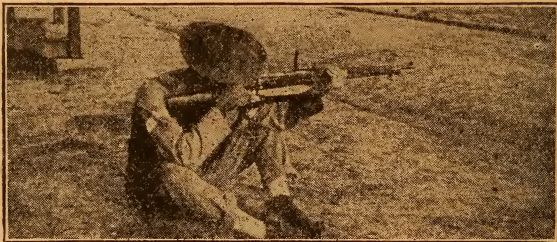
GUNNERY SERGEANT PETER LUND. The body leans forward. The point of his left elbow is over the knee.



GUNNERY SERGEANT FREDERICK V. WAHLSTROM. The left heel is braced in the right instep, both knees drop naturally, body well forward. This is an excellent position. The point of the elbow is over the knee.



FIRST SERGEANT THOMAS F. JOYCE. An easy and steady position.
Left elbow over the knee.



CORPORAL TOM WORSHAM. The soles of his shoes brace
against each other. Notice how well the rifle is held.
Left elbow over the knee.

Kneeling. This position is uncomfortable until practiced; it quickly ceases to be uncomfortable.

Main points. The right knee should point directly to the right, that is along the firing line. The **point of the left elbow should rest over the knee.** There is a flat place under the elbow which fits a flat place on the knee, and makes a solid rest. **Lean the body well forward.**



SERGEANT WILLIAM A. FRAGNER. (Winner of President's Match, 1910.)



GUNNERY SERGEANT WAHLSTROM.



CORPORAL WATT G. HIGGINBOTHAM, showing rapid fire kneeling.
The piece remains in the shoulder.



Notice the hip, body and belt rest.

Standing Position. Main points: right foot to rear and to the right, right knee bent, left knee straight, left elbow resting in belt, left arm against the body, using the body and belt for a rest. This position feels awkward at first but the best riflemen use it, and it ceases to be awkward after a little practice. There is a variety of ways of holding the rifle in the standing position. Each man must find the way that suits him best.

Constant practice in snapping is more essential in the standing position than any other. It is the most difficult position for steady holding.

The sling may be longer in this position than in any other, and each man can find for himself what length suits him the best.

When you fire in this position do not try to meet the recoil. Let the body move back. Do not be afraid to press the jaw hard against the stock. Then the head goes back with the recoil and insures that your face is not hurt.

Method of Instruction.

Questions. Why is padding on elbows placed well down on the sleeve? What is the proper length of the sling? How can you prevent the sling from slipping down on the left arm? In adjusting sling what care is taken in regard to the nibs and keepers? Where is the thumb of the right hand placed in aiming? Cheek or jaw? What about the butt of the rifle in rapid fire?

Prone Position. What is position of fingers of left hand? Legs? Heels? Left elbow? Moving right elbow out or in has what effect on muzzle?

Sitting. Condition of leg muscles? Body? Elbows?

Kneeling. Position of elbows? Body?

Standing. How should recoil be taken? What will prevent face from receiving a blow when the rifle fires?

Drills—Instead of having drills and giving commands as in Manual of Arms more satisfactory results can be more quickly obtained by taking men individually and putting each of them into the different positions. Many men are hard to get into proper position, especially the prone position, and firm persistence on part of the instructor is required.

After men have been put into each position individually they should frequently be deployed into line and practiced in snapping in both slow and rapid fire in all positions and at a definite target or object.

Watch them carefully and see that thumb is along the stock, jaw hard against stock, rifle is not canted, the trigger squeezed properly, the shot called even in snapping at both slow and rapid fire, and that in rapid fire the butt of the piece remains in the shoulder. Careless snapping has no other value than a muscular exercise. There cannot be too much snapping even for the most expert shots. Correct habits should be carefully insisted upon during snapping for men will take the same habits to the range.

Each barracks should have snapping targets at a distance as near 200 yards as possible with target A, target B and target D painted on boards: each target actual size and the boards permanently fixed somewhere on the grounds. These targets will suggest snapping that might otherwise be neglected at drill and other times.

REMARKS ON FIRING IN ALL POSITIONS.

Don't dig holes on any firing line. Other people have to shoot on the same firing line, and if holes are dug on it the firing line will soon become a mass of holes to the discomfort and annoyance of everybody.

Look at the bullets each time you load and be sure that there is no grit or dust on them. Grit or dust will scratch and ruin a bore.

Press your cheek hard against the stock. Thumb is along and not across the stock. Never cant the rifle. Keep it plumb. If you cant it the least bit the bullet will strike in the direction of the cant.

Breathe out naturally and then do not breathe while aiming.

If you aim too long you will become unsteady and your eyesight will get bad. Take the piece from the shoulder, rest and aim again. Don't look at the targets any more than is necessary. Rest the eyes by looking down on the ground.

Focus your eyesight on the targets, and not upon the sights. Look through the peep, not at it. You can center the top of the front sight in the peep instinctively; that is without any effort or thought, that is the natural way to hold it. The little scratched line on both sides of the peep is for use in setting the elevation, and you should pay no attention to it in aiming.

Hold directly under and on the bull's-eye, that is let the bull's-eye sit on top of the front sight. It is a mistake to try to have a line of white between the bull's-eye and the top of the front sight.

Squeeze the trigger. There is a little slack in the trigger. When aiming take this up with the finger so that when you wish to fire you have only to increase the pressure of the finger.

Always snap in once or twice. Before firing, cock the piece and with the piece unloaded squeeze the trigger. This will steady you down and get you better acquainted with your trigger pull.

Do not yank or pull the trigger, squeeze it easily by squeezing gently the whole small of the stock with your right hand. Let the trigger off as easy as you can, and keep up the aiming while the gun is being discharged, then you can tell where you were aiming when the bullet left the rifle.

Call the shot. As soon as you have squeezed the trigger, and before the target is marked, "call the shot," that is call out loud where you were aiming when the trigger was squeezed, and when the bullet left the rifle. Say something like this, "good pull," "bad pull," "right," "high," "left and low," or call the o'clock of the target where you expect the hit to be as "5 o'clock" for low and right hit. Be sure to say something at once, and if you have no coach or shooting partner say it aloud to yourself. A man who intends to call the shot will not shut his eyes when he squeezes the trigger. He will not quit aiming while he is squeezing the trigger. He will not flinch; calling the shot is the best cure for flinching. Make up your mind to continue aiming while the piece is being fired. Calling the shot will help you do all these things. It is very important and the habit should never be neglected, not even in rapid fire.

Questions. What effect does canting the rifle have on the bullet? How should the trigger be let off? What is meant by "Calling the Shot"? What is the object in requiring men to call the shot?

ZERO OF RIFLE.

When there is no wind some rifles require that the windgauge be set to the right or to the left in order to hit the object aimed at. For instance, when there is no wind, and in order to hit the point aimed at, the windgauge of the rifle is set at $\frac{1}{2}$ point right, it is said to have a zero of $\frac{1}{2}$ point right, and in setting the sight for windage this has to be taken into consideration. Suppose the zero of the rifle is $\frac{1}{2}$ right and you are shooting in a wind that requires 1 point right windage, you would then set your windgauge at $1\frac{1}{2}$ right, and if you are shooting in a wind requiring 1 point left windage, you would set your windgauge at $\frac{1}{2}$ point left. You can learn the zero of your rifle by asking an experienced man what windage the wind requires and then find by firing the rifle where your windgauge must be set. The difference will be the zero of your rifle; you can check it up by comparing it with the windage used by other men shooting at the same time.

Beginners need not worry about the zero of the rifle, because for the short and mid range work of the marksman course they will hit the target without knowing the zero and they can correct for windage after the target is hit. The zero of most rifles is at zero and it is seldom over $\frac{1}{4}$ right or left and is not enough to make any great difference at short range, but for accurate work, at 500 and 600 yards, the zero should be known.

Usually the zero is the same at all ranges, but there are some rifles which have different zeros at different ranges. Five hundred yards is the best range to determine the zero, and the best time is when the sun is not shining.

In slow fire after you once hit the target you can change your windage so as to bring the other shots towards the bull's-eye—but in rapid fire if the sight is set wrong at first all the shots will be bad.

Method of Instruction.

When there is no wind can the windgauge of all rifles be set at zero for accurate shooting? Suppose the conditions require no windage—but you find that with your rifle you have to use $\frac{1}{2}$ point right windage, what would be the zero of that rifle? With a rifle whose zero is $\frac{1}{2}$ right how would you set the windgauge when other conditions called for $\frac{1}{2}$ point right? (Ans. 1 point right.) For $\frac{3}{4}$ left? (Ans. $\frac{1}{4}$ left.) For $\frac{1}{4}$ left? (Ans. $\frac{1}{4}$ right.) Suppose your coach told you that conditions called for $\frac{1}{4}$ point left, but you found that with your rifle you had to use $\frac{3}{4}$ left, what would be the zero of your rifle? (Ans. $\frac{1}{2}$ left.) Suppose conditions called for $\frac{1}{4}$ right and you had to use $\frac{1}{4}$ left, what would be the zero of your rifle? (Ans. $\frac{1}{2}$ left.) Will failure to know the zero of your rifle spoil a slow-fire score when conditions are steady? (Ans. No.) Why? (Ans. Because the firer can correct the windage after each shot.) What is the best range to find out the zero of the rifle?

WINDAGE AND ELEVATION.

The Windage Rule.

(How to calculate the windage required.)

RANGE TIMES VELOCITY

DIVIDED BY 10

= NUMBER OF QUARTER POINTS OF WIND-

AGE REQUIRED FOR 3 OR 9 O'CLOCK WINDS. Winds 1 hour away from 3 or 9 o'clock, that is, 2, 4, 8 and 10 o'clock winds, require only slightly less windage; winds 1 hour away from the 12 and 6 o'clock line, that is, 11, 1, 5 and 7 o'clock winds, require about half as much windage as the 3 or 9 o'clock winds. Example: When shooting at 600 yards call the range 6, and if the wind is blowing 5 miles per hour call the velocity 5, then range x velocity is 6×5 , or 30; this divided by 10 gives 3. Then the windage required for a 3 o'clock wind would be $\frac{3}{4}$ of a point right windage and for a 9 o'clock wind $\frac{3}{4}$ left. Another example: At 1000 yards an 8-mile wind would re-

quire $\frac{10 \times 8}{10}$

quire $\frac{10 \times 8}{10}$ = 8 quarters or 2 points for a 3 o'clock wind (right windage) or 9 o'clock

wind (left windage). If the wind were from 2 to 4 o'clock, it would require about $1\frac{3}{4}$ right, and if from 8 or 10 o'clock, about $1\frac{3}{4}$ left. If it were from 1 or 5 o'clock, it would require four quarters or 1 point right windage, and if from 7 or 11 o'clock, 1 point left windage.

If trees or other objects obstruct the wind, the effect of the wind on the bullet is less than if the wind is unobstructed, and you must allow for this in estimating windage. The best rule for a beginner is to ask an experienced man where to set the wind-gauge.

Remember that for any wind the windgauge is first set to the windward and then after you hit the target, if you move the windgauge right or left, it carries the bullet in the same direction.

The simplest rule for a beginner is to ask an experienced man what windage is required.

The Quarter Point Rule.

(How to change windage in slow fire after hitting the target.)

CHANGING THE WINDGAUGE $\frac{1}{4}$ POINT MOVES THE BULLET ONE INCH FOR EVERY 100 YARDS OF RANGE. For example:

$\frac{1}{4}$ point at	200 yards	moves the bullet	2 inches	on the target.
$\frac{1}{4}$ point at	300 yards	moves the bullet	3 inches	on the target.
$\frac{1}{4}$ point at	500 yards	moves the bullet	5 inches	on the target.
$\frac{1}{4}$ point at	600 yards	moves the bullet	6 inches	on the target.
$\frac{1}{4}$ point at	800 yards	moves the bullet	8 inches	on the target.
$\frac{1}{4}$ point at	1000 yards	moves the bullet	10 inches	on the target.

The marks at the bottom of the target in the score book show how much to change the windage for hits directly above the mark, but you may not always have your score book with you and it is well to remember the simple rule.

The Square Rule.

(How to change in elevation after hitting the target.)

CHANGING THE ELEVATION 100 YARDS AT ANY RANGE GIVES CHANGE ON THE TARGET EQUAL TO THE NUMBER OF INCHES IN THE SQUARE OF THE RANGE. Example: At 200 yards changing the elevation 100 yards gives 4 inches change on the target; at 300 yards, 9 inches; 500 yards, 25 inches; 600 yards, 36 inches; 800 yards, 64 inches; 1000 yards, 100 inches. Changing 50 yards gives half as much, and changing the elevation 25 yards gives one-fourth as much. For example: When shooting at 600 yards changing elevation 25 yards gives a change of 9 inches on the target; at 800 yards, 16 inches, and at 1000 yards, 25 inches.

This rule is not exact but is close enough for all purposes.

The marks on the side of the target in the score book show how much to change the elevation, but you may not have your score book with you and you should remember the square rule.

Do not make changes in windage or elevation boldly. Make a little less change than what the score book or the rules would call for. In practice you will find that changes sometimes carry the bullet more than you would expect. Change cautiously. In case of doubt favor the smaller change, and unless quite sure of the hold or pull or unless changes in conditions suggest it do not change for one shot a little off.

When you observe a change in wind or other conditions, or when several shots have grouped off the bull's-eye, do not hesitate to change the sights.

In slow fire always aim the same way and control the point of hit by changing elevation and windage. With the battle sight you can only change the windgauge and you have to aim higher or lower to raise or lower hits.

Method of Instruction.

Turn to a 500 yard score page and notice the elevation marks on the side and the windage marks on the bottom of the target. (In all these examples when in doubt give the smaller change.) A bullet strikes at the top of the target (a 2 at 12 o'clock), how much change in elevation is required for next shot? For a 3 at 12 o'clock? For a 4 at 6 o'clock? Suppose you hit the dirt just under the target, how much change?

How much change in windgauge is required for a 2 at 3 o'clock, for a 3 at 9 o'clock, for a 4 at 3 o'clock? How many points of windage in the entire width of the target? How many points wide is the bull's-eye?

What changes are required for a 2 at 10 o'clock? A 2 at 7 o'clock? A 3 at 5 o'clock? A 3 at 2 o'clock? A 4 at 1 o'clock? A 4 at 8 o'clock?

Turn to a 600 yard score page and give the same or similar exercise.

In the above exercises the men should see from the elevation and windage marks the changes required.

Now use a B target or a representation of a B target with its bull's-eye and rings drawn on a poncho or blackboard. (This need not be actual size, as the target at a distance does not look as large as one near by.) Close all books, remember the dimensions of targets, especially the size of bull's-eye, and "the nine inch rule," and the quarter point rule for windage and the square rule for elevations.

Assume that the firing is at 500 yards. Point out various locations and ask what changes would be made in both elevation and windage.

Conduct a similar exercise assuming the range to be 600 yards.

KEEPING THE SCORE BOOK.

Study the specimen score sheets. It is important to fill out every space and you will soon be able to find the zero of your rifle after shooting a little, and next time you fire you will know about what elevation to use, or with battle sight where to aim.

Use figures for dates, thus: September 12, 1910, is 9-12-10.

The kind of ammunition is recorded thus: F. A. 1910, which means manufactured at the Frankford Arsenal in 1910.

Mirage is recorded as heavy (H), medium (M), or light (L), and where none is visible as "O."

Light is entered as bright (B), or if the sun is not shining, as dull (D).

Sun, that is direction of sun from firer, is recorded thus: Right, right rear, left front, directly in front, etc.

Dashes (—) in columns marked "Elev." (elevation) and "W.-G." (windgauge) indicate no change.

Indicate in the column marked "Pull" by a dot (.) or a cross (X) where you called the shot.

Write any notes you wish to remember on the margins or over the face of the diagram of the target.

Method of Instruction.

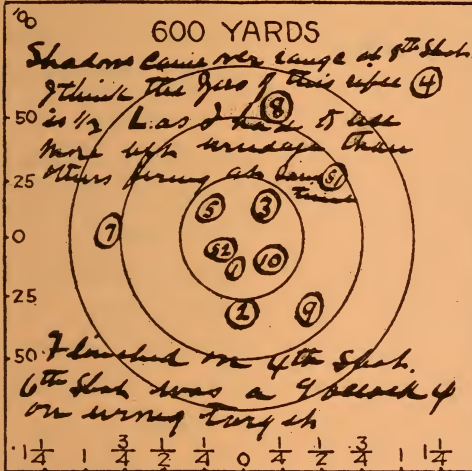
Hold exercises in filling in a score page in slow fire at target B, slow fire (sighting in) at target D, and rapid fire. Announce data covering every space. Designate on a target the location of one shot at a time. Let men assist in deciding changes in elevation and windage. The work should be closely supervised and inspected and the exercise repeated for those whose score pages do not qualify them.

While firing on the range men should always be required to keep the score book accurately because this cultivates the habit of taking pains and the power of observation, two things that are absolutely necessary to a skilful rifleman.

Men will neglect to keep the score book unless it is inspected after each string.

RIFLE NO. 416735 ZERO 1/2 LEFT
 PLACE Winthrop DATE 10/18/10 HOUR 3 p.m.
 AMMUNITION 7.2 1910

EVENT Two Landmark
Practical Target Value



NO	Elev	WG	Pull	VALUE
S	550	3/4	Q	5
S	525	1/4	Q	5
1	-	-	Q	5
2	-	-	Q	4
3	550	-	Q	5
4	-	-	Q	2
5	-	-	Q	5
6	-	-	Q	0
7	-	-	Q	3
8	-	1/2	Q	3
9	-	-	Q	4
10	-	-	Q	5

WIND 9... O'CLOCK 5... MILES MIRAGE Right
 LIGHT Bright - Longish bright
Wind began to die out about 6th shot no wind at end

TOTAL SCORE 36

DIRECTION OF SUN Right Rear

RIFLE NO 416735 ZERO $\frac{1}{2}$ L AMMUNITION F.A. 1913.

PLACE Virginia Beach

RANGE 300 YARDS

DATE 6-13-13 HOUR 10 am.

WIND

8 O'CLOCK 5 MILES

LIGHT B SUN ^{light} front

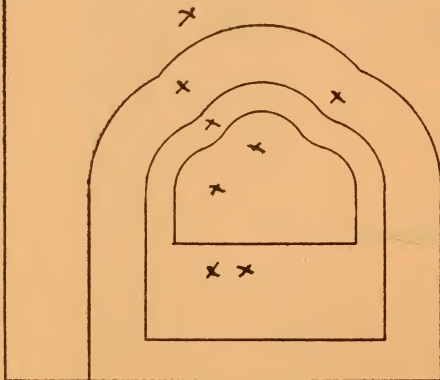
WIND GAUGE $\frac{3}{4}$ L

~~SLOW FIRE (SIGHTING IN)~~

RAPID FIRE

AIMED AT Top of
Numbers on
butts

EVENT Record



SCORE	5	5	4	4	4	3	3	2	2	0
-------	---	---	---	---	---	---	---	---	---	---

TOTAL SCORE 32

RANGE DUTIES.

Efficient Service Demanded.

Efficient marking and scoring are necessary for good results on a range. Without such efficient work shooting is tedious and uninteresting. Now-a-days riflemen demand honest work, and any other kind immediately kills all interest. False marking or scoring is very rare on well-conducted ranges and is easily detected. Riflemen complain immediately if their shots are incorrectly spotted and disked and coaches requiring men to call the shot detect any fraud in the pits at once.

Marking is usually checked up by having a good shot fire several shots on each target. Those in the butts cannot tell who is firing, and it is exceedingly unsafe for them to do improper marking.

Score Boards.

All scoring should be done on a blackboard in plain view of all bystanders. Fraud without immediate detection is then impossible. Supervisors do not have to be immediately near the firing point to check the scoring at that point. They can observe the target from any point and then visit the score board and see if the scores are recorded properly.

It is not necessary to have a non-commissioned officer, or even a select man for scoring. The open board insures properly kept scores. The score card, or any method of keeping them in a book not held up to public gaze invites fraud.

When practicable men not belonging to firing party should be provided for scoring. It is troublesome and a strain on the firers to require them to score, when not on the firing line, but it is often necessary to do so.

Spotters.

The spotter should always be used in all fire where one shot is fired at a target before it is marked. In addition to informing the rifleman where his shot has struck, the value of the shot as disked must agree with the spotter. The shot hole containing the spotter is not pasted until the spotter is removed after the next shot, and an opportunity is thus given supervisors in the butts to examine the shot hole at any time before the next shot is fired.

Number of Markers Required.

For short and mid-range targets one man is sufficient to handle a target. The work will keep him busy, but if he has a helper an argument will arise as to who is to do the work, and it will be poorly done. Two men are required on long-range targets, because they require more work to operate them and are too large for one man to watch, and two men give quicker service.

Buzzers.

Buzzers are not necessary on ranges; frequently they are misused by being pressed before the bullet reaches the target, and they make the markers inattentive. It is better to let the markers watch and keep on the alert. One telephone to a group of from ten to fifteen targets is sufficient.

Men like to push the buzzers, and they will seek every occasion to do so, and they become a nuisance. Meaningless ringing of them should be minimized by requiring that permission be obtained from coach or range officer each time the buzzer is pressed. It is the height of folly to press the buzzer for a re-mark. The marker will then always pull the target and signal a miss.

Firing by Pairs and Singly.

In a team match a pair of firers usually occupy a firing point and fire alternately, the man on the right firing first. At other times, when single targets are used, it is best to have a firer to fire singly. Then there is less confusion, men do not mistake each others' spotters, the scorer can more easily keep track of things. A coach cannot properly supervise more than one man at a time, and there is less irritation of waiting to fire.

To prevent loss of time between strings another man to stand by should be present and in position on the firing line.

Single Targets.

Single targets, that is only one target on each carrier, are preferable in every respect to double targets. A bag filled with sand and attached to the rear carriage will counterbalance the front target, or the target on the rear carrier can be faced to the rear, or one kind of target can be placed on front carriage and another kind on rear carriage, so that firing can be shifted from one kind of target to the other without delay. Even if the same kind of target is on both front and rear carriages the target should be operated single target fashion, that is the rear target will not be used.

Single targets are faster than double targets, even when men are shooting in pairs, because a man gets his spotter at once and no time is lost in changing the elevation, or windage. They are simpler and render messages between the firing line and butts less confusing. They are easier on the markers in the butts.

Communication with Butts.

Angry and irritating messages to butts only result in still poorer service. Language to butts should be brief. Make up your mind what you are going to say before you start to give your telephone message. When you want target No. 6 marked when it has not yet been pulled, simply say, "Mark 6." When it has been pulled and marked and you want it pulled and marked again say, "Re-mark 6." When you want the hit disked or disked a second time say, "Disk 6." If a certain target gives consistently bad service call to the telephone the one in charge of the butts, explain definitely what the trouble is, and don't use such expressions as "Tell No. 6 to wake up."

The Officer in Charge.

The instructor, before men are marched to the range, should inspect rifles, see that sights are blackened, that shoulders and elbows are padded, and that the men have pencils and score books. He should read aloud the **Important Range Rules** in this book. Before falling out at the range he should assign scorers, coaches and men to targets. He should announce before beginning fire at each range the value of a change of a quarter of a point of windage and of 25 yards in elevation, also the force and direction of the wind, the direction of the sun and the windage required.

The Coach.

The coach should be on the firer's right. He sees that the sights are black and are set properly, requires the firer to explain the line of sight and how to aim, requires the firer to take the proper position with the strap the proper length, the jaw hard against the stock, thumb not across the stock; requires the firer to snap at least twice and that he squeezes the trigger properly; requires the firer to call the shot immediately, even in snapping. He advises the firer how to change the sights

to bring the hits to the bull's-eye, and inspects sights each time they are changed. He watches every detail carefully and corrects all faults, and gives any necessary instruction. He requires the firer to keep his score book properly. He sees that the rifle is unloaded before the firer leaves the firing point.

A coach is indispensable at each firing point. There should always be one on duty at each firing point even in record practice, when he is not to assist the firer, after he has taken position at the firing point to see that the requirements are carried out, and to guard against accident and delay.

Rapid Fire.

The targets should be operated for rapid fire several times before being fired upon to give the crew in the butts preliminary drills. The firers should practice snapping when this is done. It is called **dummy practice**.

The stand-by man at each target should be required to have dummy practice while the firer is firing.

When all the targets are half-masted, it means that the butts are ready. The command **load** is then given. The magazines are filled, the piece loaded and locked. The caution "Place a clip in the belt" is then given. Then the command **call off**. Beginning with the smallest number each man calls the number of the target he is to fire on. Then there will be no mistake as to who is to fire and which target is to be fired on. If not prepared, instead of calling off the man calls "not ready on number ——" and the next man then takes up the call off. After the call off the delayed men report "Number —— prepared." (On long firing lines targets may be divided into several blocks and each block begins to call off at command and the supervisor reports the blocks in order.) Then signal or message, "Ready on firing line," is given to butts. When the stand-by signal appears the command **ready** is given. The firers unlock. When the targets appear the firers take position, open fire, empty

magazine, refill magazine from clip in belt and complete the fire. If the clip breaks or jams, the cartridges may be loaded singly.

Unfired cartridges count as misses. If a man fires on the wrong target, only such as have hit his own target will be counted as his score. Hits on the wrong target are scored as misses.

In case of a defective cartridge or disabled piece or when more than ten hits are made on a target the practice is repeated.

Scorers.

When a shot is disked the scorer should announce loud enough to be heard by the firer and the bystanders, "Private ————. First sighting shot a five," or "Corporal ————. Tenth shot for record a miss." Use expression "five" instead of bull's-eye, and "miss" instead of the improper expression "swabo."

Do not erase the scores until directed by the score taker.

A hit made on the wrong target is scored as a miss.

If a buzzer is provided do not use it without permission each time from a coach or range officer, and never press it to have a target remarked, because the target will then be pulled and a miss signalled. The scorer calls up the new stand-by man as soon as the firer leaves the firing line.

In rapid fire as soon as the target appears for marking the scorer announces thus, "Target No. 6, Private Foster, one five, two fives, one four, two fours, three fours, one three, one two, two twos, one miss, two misses," and scores it thus:

5 5 4 4 4 3 2 2 0 0—29

announcing the total.

Scorers do not announce the o'clock of hits.

They must be soldierly in manner and bearing, be civil in communication, avoid comments and arguments, and when any question arises, call a range officer.

Specimen Score Board.

Scorer Pvt Harper.

Target No. 27.

NAME	Rank	S/S	1	2	3	4	5	6	7	8	9	10	Total
Stone	Corporal	4/4	5	5	4	4	5	5	5	5	5	5	48
Blood	Private	5/5	5	5	5	5	5	5	5	5	5	3	48
Hutchison	Corporal	4/4	4	4	3	4	4	4	4	4	4	4	39
Ganavan	1st Sgt	4/5	5	5	5	4	5	5	5	5	5	4	48
Burdick	Sergeant	4/3	4	5	5	3	4	4	3	5	4	4	41
Walters	Private	0/3	4	2	0	3	2	5	3	0	3	2	24
Latta	Private	3/3	5 5	5 5	5 5	4 5	5	5	5	5	5	5	50
		/											

A score can be easily and quickly totalled at a glance. For instance, on the specimen score board the three scores which total 48 each are each 2 down from 50, or 8 up from 40. The 39 is one down from 40. The 41 is 3 up and 2 down. There is no easy way to total the 24.

After a possible has been made the firer without interruption, should continue to fire until he shoots out of the bull. Private Latta's score

shows 13 bull's-eyes for record. Of 48's Private Blood's is the lowest because it contains a 3. It is the very lowest 48 because the 3 is the last shot. Corporal Stone's 48 ranks that of First Sergeant Canavan, because the last four in Corporal Stone's score is earlier than the last four in First Sergeant Canavan's.

Markers.

Use single targets.

The white disk marks a 5, the red a 4, the white and black a 3, and the black a 2. A miss is signalled by waving a red disk or flag across the target and back.

A shot hole just touching the edge of the bull's-eye or silhouette, or the outside edge of a ring or division of a target receives the same value as if it had struck inside.

Targets are said to be half-masted when the front and rear targets are at the same height, that is one directly in front of the other, or if there is a counter-balance instead of a target on the rear carrier, when the targets are run half way up.

When the butts wish firing to cease, all targets should be withdrawn (half-masted), the red flag put up and a message received from the firing line that firing has ceased before it is safe for any man to expose himself.

In slow fire use spotters, watch the target closely and when it is hit pull it, place a spotter in the shot hole and paste the old shot hole from which the spotter was removed. Then shove up the target and place center of disk over the center of the spotter. A ricochet hit is indicated by disking in usual manner and then waving the same disk across the target and back. Before signalling a miss or when request for re-marking a target comes from firing-line, call an officer or non-commissioned officer to inspect the target.

In rapid fire as soon as targets are pasted and ready to be served they should be half-masted.

When notified "Ready on the firing line," the stand-by signal is made by holding the red disk well above the designated target, staff of disk, being in front of middle of the target. The disk is displayed about 5 seconds. At the command **stand by** it is withdrawn. The command **up** will be given 5 seconds later. When the proper time has elapsed the commands **stand by, down,** are given. A whistle or bell may be used instead of the commands.

The targets are divided into blocks and the officers or non-commissioned officers assigned to supervise each block visit their targets in turn, beginning with the smallest numbers and supervise the diskings. Fives are disked first, then fours, then threes, then twos, and the red disk is waved across the target and back once for each miss. After targets are marked the supervisors re-visit each of their targets and inspect to see that all shot holes are pastered. Each target is half-masted as soon as it is inspected.

Before targets are marked the supervisor puts a small circle around each hit to prevent its being counted again in case the paster should fall off. He should keep a record of the hits and scores made on each target, so that it may be compared with record on score board on firing line.

In case of more than 10 hits on a target, the target will not be marked, but the firing line will be notified.

The instructions for coaches and scorers and the following

Important Range Rules

should be read to the assembled coaches, scorers and firing party before they fall out of ranks:

When on the range the bolts of all rifles must be drawn fully back and the chambers kept open at all times when the firer is not at the firing point, and the rifle must not be loaded until immediately before it is to be fired.

Blacken your sights.
Have your rifle clean.
Have pencil and score book.

Study the diagram target in the score book before shooting at each range.

Ask an experienced shot what windage to start with.

Tell scorer your name and initials and watch him write it.

Do not snap behind the line. If you wish to snap at target get fully abreast of the firers. You are welcome on uncrowded firing lines, except in matches.

Keep rifle unloaded when not on firing line.

Keep your ammunition clean and in the shade.

Keep muzzie to the front whether loaded or not.

Squeeze the trigger and get each shot off without a jerk.

Try to maintain aim during firing. This will cure flinching.

Call each shot aloud at once. If you have no coach, call it aloud to yourself.

Pay strict attention to the scorer when he announces your name and value of your shot.

When your score is finished examine your score and total on the score board.

When you leave the range go at once to the cleaning rack.

Taking the Scores.

The scores are taken by an officer or non-commissioned officer from the score boards. Only the totals are recorded. A line drawn through the total signifies that it is recorded, but the scores should be left displayed on the score board until the space is needed or until the firing at that range is finished. If the men are to remain squadded in the same way for further firing, caution the scorers not to erase the names when they erase the scores.

SCORE TAKERS RECORD. ARMY QUALIFICATION COURSE

Name	Rank	Slow Fire and Sighting in					Rapid Fire				Aggregate	Date
		200	300	500	600	Total	200	300	500	Total		
					X							
		X										
					X							
		X										
					X							
		X										
					X							
		X										

Upper lines Instruction, lower line Record.

PART II.

This part is more especially for the information of those who have learned in practice the principles taught in the first part of the book. What follows is for the information of officers and non-commissioned officers and for those who have acquired sufficient ability and interest in shooting to make other features profitable and interesting to them. Those who are to assist in the instruction of men should know this part.

THE MICROMETER OR VERNIER.

The micrometer or vernier is a small instrument for making very small and accurate changes in elevation. It is constructed so that a movement of one of its divisions makes a change on the target equal to one inch for each 100-yard range. For example:

200 yards
3
300 yards
3
400 yards
4
500 yards
4
600 yards
5
700 yards
6
800 yards
7
900 yards
8
1000 yards

A change of one division called minutes or degrees on the micrometer at 200 yards gives us a change of 2 inches on the target; 600 yards, 6 inches; 1000 yards, 10 inches, and so on for every range. The best way to learn to set and read a micrometer is to get an experienced man to show you. The instrument is very simple and it is used by all the most expert shots. It is not advisable, however, to teach its use to inexperienced men. When using the vernier the changes made between the different ranges are shown in the table.

Examples: If shooting at 500 yards raise the sight 4 minutes when you begin to fire at 600 yards; that is, if your sight was set at the micrometer reading of 45 at 500 yards, you would set it at 49 when you started to shoot at 600 yards. Another example: Suppose you were shooting at 800 yards, using the micrometer elevation of 60, then if you moved back to the 1000 yards you would raise the sight 7 plus 8 or 15 minutes, so that your micrometer elevation at 1000 yards would be 75.

NOTES ON SHOOTING.

A few years ago, extensive systems of "dope" prevailed. The Krag rifle then in use and the ammunition were usually so inaccurate that failure to shoot accurately was assigned to a great number of causes, among them heat (thermometer), pressure of air (barometer), moisture in the air (hygrometer) and other weather conditions. A rifle team outfit then resembled a weather bureau. These conditions do theoretically and slightly influence elevations, but to such a small extent that they need not be considered with the new Springfield rifle and the excellent ammunition now made for it.

There are two conditions which do considerably affect elevations at long range; they are light and mirage. Their effect is not noticeable at short range and is small at mid ranges (500 and 600 yards), but is considerable at long ranges (800 and 1000 yards). The effect on elevations by head and tail winds is noticeable at 1000 yards and strong winds require an allowance of not over 25 yards at 1000 yards. Higher elevation is required for head winds and lower elevation for rear winds.

Mirage.

Mirage is the heat waves often noticed with the naked eye, but more clearly seen with the telescope. It is really the air traveling on the range. It is the best guide for windage because as seen through the telescope directed at the target it is the actual air through which the bullet travels, while flags may show currents of air moving in other directions. When the mirage and flags do not agree, which is often the case on the range, the mirage is the true guide.

The ability to see clearly the correct movement of the mirage and estimate its rate or speed and to see it stop and change direction comes only by practice and study. The beginner can easily see the disturbance of the air, but at first is usually unable to tell whether it is moving to

the right or to the left, or to detect slight changes in its speed. The best way to acquire ability to skillfully use the mirage is to constantly study it through the telescope while shooting, and get help from some experienced "wind doer" who will watch it with you.

The ability to use the mirage skillfully in shooting is what distinguishes the real long range match rifleman from the novice.

Strong winds dispel mirage.

The information obtained from the mirage is more valuable when the wind is light and especially when it is fishtailing, that is, shifting from one side to the other. You cannot keep track of the direction of the fishtail winds by the flags, but the mirage will tell you exactly. Any good holder can make a good score in a cross wind, but the real test comes when handling fishtail winds.

Heavy mirage calls for higher elevation. A heavy mirage causes a wavy appearance of the target, making the target to appear to dance up and down, thus making its lower edge appear lower than it really is, and consequently when the sight is held under the objective, higher elevation is required. At 1000 yards the additional elevation required is sometimes as much as 25 yards or 2 or 3 minutes on the micrometer.

When the wind is fishtailing the mirage changes direction, that is, sometimes moves to the right, and sometimes to the left. When there is no movement to the right or left, the wind is either still for the moment or the wind is carrying the mirage directly towards or from the target. The mirage then appears to rise, and is said to be "boiling." Try to avoid shooting in a "boil," for this is when the elevations are more disturbed and you are liable to get a miss (below the target). The mirage "boils" just as it changes direction from right to left or from left to right. Wait for the mirage to take a movement to the right or left; it never "boils" long. If you get one of the misses described above, don't get excited and begin to make changes but watch the mirage and be

careful to avoid the "boil" the next time. This accounts for some of the misses which inexperienced shooters are apt to call "unaccountables" and for which they blame the ammunition, or something else beside the true cause.

When a pair are shooting together they should watch the mirage and coach each other.

A light mirage which is not in a "boil" does not appreciably affect elevation.

Light.

A change in conditions from bright light (sunshine), or dull light (cloudy), requires changes in both elevation and windage.

If you are shooting in a dull light and the sun comes out, your shots will then strike low, and if the sun is to the right your shots will also strike to the left, or, if the sun is to the left your shots will also strike to the right.

The effect of light must therefore be compensated for, and the rule is to **move your sight into the sun both for elevation and windage**. In other words if shooting in a dull light and the sun comes out raise your elevation and move the windage to the right if the sun is to the right or to the left if the sun is to the left.

The amount of change to make for sunlight has been found by practical experience to be from $\frac{1}{4}$ to $\frac{1}{2}$ point on windgauge and about 25 yards in elevation.

A good plan for mid and long range slow fire when shooting in changing lights is to wait as much as possible and try to fire your shots under the same light conditions.

Do not concern yourself with the question of dull targets and bright sights or dull sights and bright targets unless you are in an investigative turn of mind and wish to do some experimenting at the expense of your score. A cloud never hangs steady so as to shade only a part of the

range, for any great length of time. Wait for a uniform condition either bright or cloudy and remember the general rule: **dull lights, lower elevations; bright lights, higher elevations and move windgauge into the sun.**

The best condition for shooting to determine the zero of a rifle is a dull light or cloudy day; five hundred yards is the best range for determining the zero; at shorter ranges a change of a quarter of a point gives too small a change (at 200 yards it is only two inches) on the target and at ranges longer than 500 yards the trajectory begins to get unsteady and unreliable.

Bear the sun rule in mind and you will not accuse your rifle of changing its zero so often.

In using battle sights you must hold higher in bright light than in dull light, and when you "sight in" for skirmish or rapid fire remember and note in score book whether the light was bright or dull.

Strong eyes require less change for light and some men have eyes strong enough not to be disturbed by change of light.

Different opinions from those stated in regard to mirage and light are held by some but ample experience has thoroughly confirmed the statements given here.

The experience of good shooters is that for all conditions affecting elevations, there is rarely a difference even at 1000 yards of over 50 yards or 5 minutes on the micrometer, between the average elevation used and the highest or lowest elevation for any rifle. Do not get the idea that these conditions are going to puzzle you seriously, because with your average elevation at any range you ought almost always to hit the target with your first shot, and you can then make necessary changes to bring your shot into the bull's-eye. Your sighting shots will enable you to start your record string off good.

Finding the Target.

If the target is not hit by the first shot, the trouble is probably in elevation, because any error in estimating the windage should not be sufficient to carry your shot off the target. To find the target, make changes in elevation at long range of 50 yards and at mid range of 100 yards at a time, first down and then up, because if the shots have struck just a little low, you will probably have seen a splash of dirt, and the chances are that your shot went high. Often misses are the result of neglecting to set the sight, or of the sight slipping down. First examine your sight and see that the windage has been set on the correct side, and then if you have made no mistake you should begin by coming down at long range 50 yards, then if you miss again come up 50 yards from the original elevation, and so on until you find the target. If you change more than 50 yards at 1000 yards you are liable to jump the target.

Telescope.

A telescope is needed for mid and long range shooting. The telescope is placed on a rest so that you can easily place the eye to the telescope while watching the mirage, and just after shooting so that you can see your spotter. A camp stool upside down is a fine telescope rest. You cannot see the spotters with the naked eye at long range, and they are often hard to see at mid range. Every butt should be provided with spotters which are placed in the shot holes to show the exact location of the hit. The plan of putting the marking disk over the hit, and not using a spotter is not accurate enough as the markers are often careless, and the shooter may not see the disk. The spotter shows the location of the hit accurately, and the shooter can look at it at his convenience. Spotters are cheap and they can be improvised if necessary, and their use should never be dispensed with in slow fire.

LONG DISTANCE PRACTICE.

(Extracts from Army Small Arms Firing Regulations.)

87. (3) Long distance practice is for experts and sharpshooters only. It is for instruction and is not a factor in qualification.

115. Long Distance Practice.

TABLE 6.

Range	Shots	Position	Date Score	Date Score
800	10	Prone		
1000	10	Prone		

To be fired twice, but on different days.

116. Long Distance Practice. For sharpshooters and experts only.

After an organization has completed record firing, qualification course, those men in the grade of expert and sharpshooter will take the long distance practice.

The long distance practice will be shot two times on different days, but after an officer or enlisted man has once fired the complete long distance course, practice at 800 yards may be omitted at the discretion of the Company Commander. The practice will be conducted as laid down for short fire, qualification course. Every effort will be made to teach the men the effect of wind, light, and temperature, and the value of small changes in elevation and windage at long ranges.

No report of this firing will be required but a record of it will be kept in each company.

PRACTICE WITH TELESCOPIC SIGHTS.

(Extracts from Army Small Arms Firing Regulations.)

87. (4) Practice with telescopic sights is for instruction of specially selected men in the use of this device; these to be experts or otherwise four of the best shots in the company. It is not a factor in qualification.

117. Practice with Telescopic Sights.

Targets B and C slow fire. Distances: Up to and including 1000 yards. No time limit.

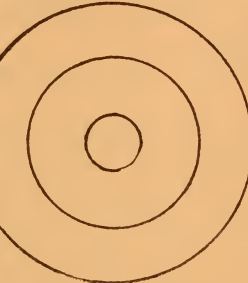

Who will fire: After long distance firing has been completed the four best enlisted shots of the company will fire, using telescopic sights. The ammunition used will not exceed 40 rounds per man firing.

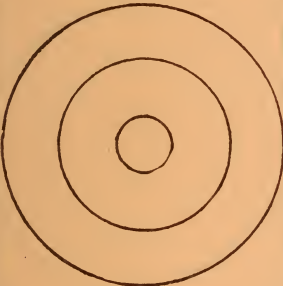
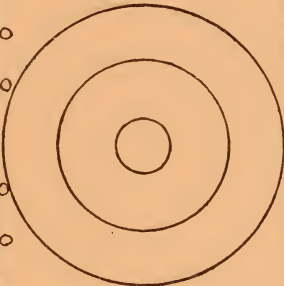
This practice is intended for long ranges only, but it may be found necessary, until the rifles are accurately sighted, and the elevations known, to start at shorter ranges and work back, no range being left until the target can be hit at that range. This part of the practice will be at the discretion of the officer conducting the firing. Target B may be used if found necessary to fire at ranges shorter than 1000 yards.


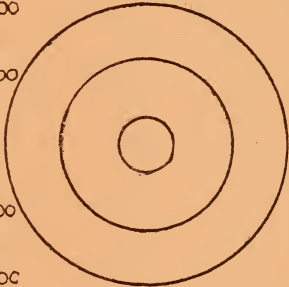
At 1000 yards each man will fire 20 shots for record. No report of the firing will be required, but a record of it will be kept in the company. This record will show the number of the rifle with which the score was made, the elevation and windage used at the various ranges and the force and direction of the wind at the time of firing. This data will then be available when future practice is held with this particular rifle and sight.

Practice may be held at 1200 yards where a suitable range is available.

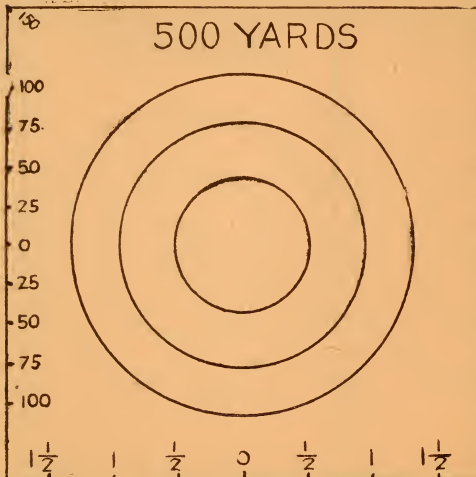
PART III.

SCORE	RIFLE NO		ZERO		PLACE		SCORE		
	AMMUNITION								
DATE			HOUR		DATE			HOUR	
200 YARDS			200 YARDS						
									
3 2 1 0 1 2 3			3 2 1 0 1 2 3						
TOTAL Wind ... O'clock ... Miles Light Elevation ... Wind Gauge ... Event			TOTAL Wind ... O'clock ... Miles Light Elevation ... Wind Gauge ... Event						

SCORE	RIFLE NO		ZERO		PLACE		SCORE
	AMMUNITION						
	DATE			DATE			
HOUR			HOUR				
200 YARDS			200 YARDS				
							
200 100 0 100 200							
3 2 1 0 1 2 3			3 2 1 0 1 2 3				
TOTAL	Wind --- O'clock --- Miles			Wind --- O'clock --- Miles			TOTAL
	Light -----			Light -----			
	Elevation ----- Wind Gauge -----			Elevation ----- Wind Gauge -----			
	Event -----			Event -----			

SCORE	RIFLE NO		ZERO		PLACE		SCORE
	AMMUNITION						
	DATE			HOUR			
300 YARDS				300 YARDS			
				2-00			
				1-00			
				0			
				1-00			
				2-00			
	2 1 1/2 1 1/2 0 1/2 1 1/2 2			2 1 1/2 1 1/2 0 1/2 1 1/2 2			
TOTAL	Wind ... Oclock ... Miles			Wind ... Oclock ... Miles			TOTAL
	Light			Light			
	Elevation..... Wind Gauge.....			Elevation..... Wind Gauge.....			
	Event.....			Event.....			

RIFLE NO. ZERO
 PLACE DATE HOUR
 AMMUNITION



EVENT				
No	Elev	W.G.	Pull	VALUE
S			<input type="radio"/>	<input checked="" type="checkbox"/>
S			<input type="radio"/>	<input checked="" type="checkbox"/>
1			<input type="radio"/>	
2			<input type="radio"/>	
3			<input type="radio"/>	
4			<input type="radio"/>	
5			<input type="radio"/>	
6			<input type="radio"/>	
7			<input type="radio"/>	
8			<input type="radio"/>	
9			<input type="radio"/>	
10			<input type="radio"/>	
TOTAL SCORE				

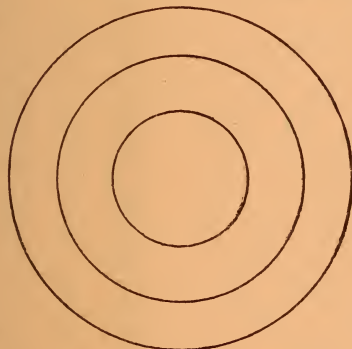
WIND OCLOCK MILES MIRAGE
 LIGHT
 DIRECTION OF SUN

RIFLE NO. ZERO
 PLACE DATE HOUR
 AMMUNITION

EVENT

No	Elev	WG.	Pull	VALUE
S			○	×
S			○	×
1			○	
2			○	
3			○	
4			○	
5			○	
6			○	
7			○	
8			○	
9			○	
10			○	

500 YARDS



100
75
50
25
0
25
50
75
100

$1\frac{1}{2}$ 1 $\frac{1}{2}$ 0 $\frac{1}{2}$ 1 $1\frac{1}{2}$

WIND OCLOCK MILES MIRAGE

LIGHT

TOTAL SCORE

RIFLE NO. ZERO
 PLACE DATE HOUR
 AMMUNITION

100

500 YARDS

100

75

50

25

0

25

50

75

100

$1\frac{1}{2}$

1

$\frac{1}{2}$

0

$\frac{1}{2}$

1

$1\frac{1}{2}$

WIND OCLOCK MILES MIRAGE

LIGHT

EVENT

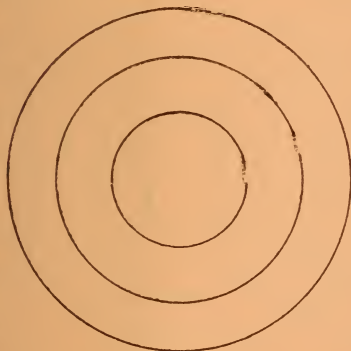
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S			<input type="radio"/>	<input checked="" type="checkbox"/>
1			<input type="radio"/>	
2			<input type="radio"/>	
3			<input type="radio"/>	
4			<input type="radio"/>	
5			<input type="radio"/>	
6			<input type="radio"/>	
7			<input type="radio"/>	
8			<input type="radio"/>	
9			<input type="radio"/>	
10			<input type="radio"/>	
TOTAL SCORE				

RIFLE NO. ZERO
 PLACE DATE HOUR
 AMMUNITION

EVENT

No	Elev	WG.	Pull	VALUE
5			○	×
5			○	×
1			○	
2			○	
3			○	
4			○	
5			○	
6			○	
7			○	
8			○	
9			○	
10			○	

500 YARDS



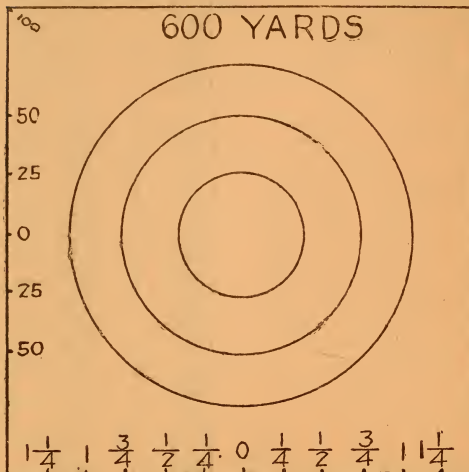
WIND O'CLOCK MILES MIRAGE

TOTAL SCORE

RIGHT

DIRECTION OF SUN

RIFLE NO. _____ ZERO _____
 PLACE _____ DATE _____ HOUR _____
 AMMUNITION _____



EVENT _____

No	Elev	W.G.	Pull	VALUE
S			<input type="radio"/>	<input checked="" type="checkbox"/>
S			<input type="radio"/>	<input checked="" type="checkbox"/>
1			<input type="radio"/>	
2			<input type="radio"/>	
3			<input type="radio"/>	
4			<input type="radio"/>	
5			<input type="radio"/>	
6			<input type="radio"/>	
7			<input type="radio"/>	
8			<input type="radio"/>	
9			<input type="radio"/>	
10			<input type="radio"/>	

WIND _____ O'CLOCK _____ MILES MIRAGE _____

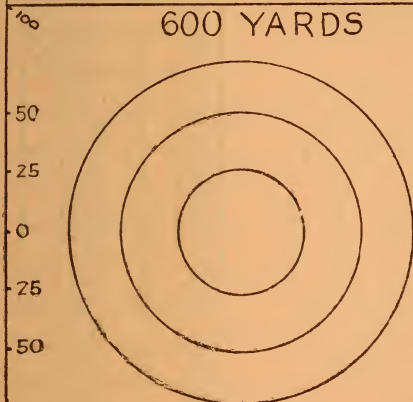
LIGHT _____

DIRECTION OF SUN _____

TOTAL SCORE _____

RIFLE NO. _____ ZERO _____
 PLACE _____ DATE _____ HOUR _____
 AMMUNITION _____

EVENT _____



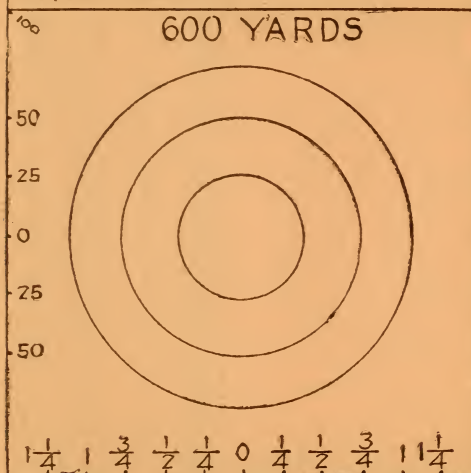
No	Elev	W.C.	Pull	VALUE
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5			<input type="radio"/>	<input checked="" type="checkbox"/>
1			<input type="radio"/>	
2			<input type="radio"/>	
3			<input type="radio"/>	
4			<input type="radio"/>	
5			<input type="radio"/>	
6			<input type="radio"/>	
7			<input type="radio"/>	
8			<input type="radio"/>	
9			<input type="radio"/>	
10			<input type="radio"/>	

$1\frac{1}{4}$ $1\frac{3}{4}$ $1\frac{1}{2}$ $1\frac{1}{4}$ 0 $1\frac{1}{4}$ $1\frac{1}{2}$ $1\frac{3}{4}$ $1\frac{1}{4}$

WIND _____
 LIGHT _____
 _____ O'CLOCK _____ MILES MIRAGE _____

TOTAL SCORE _____

RIFLE NO. _____ ZERO _____
 PLACE _____ DATE _____ HOUR _____
 AMMUNITION _____

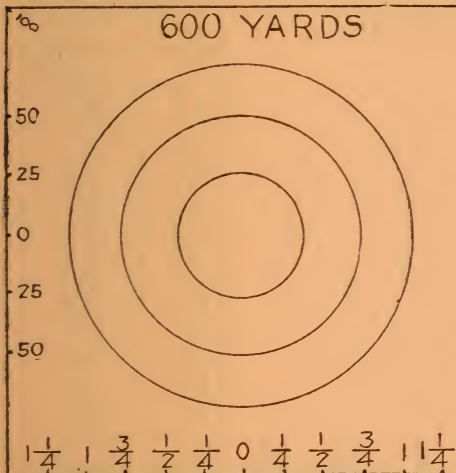


EVENT				
No	Elev	W.C.	Pull	VALUE
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5			<input type="radio"/>	<input checked="" type="checkbox"/>
1			<input type="radio"/>	
2			<input type="radio"/>	
3			<input type="radio"/>	
4			<input type="radio"/>	
5			<input type="radio"/>	
6			<input type="radio"/>	
7			<input type="radio"/>	
8			<input type="radio"/>	
9			<input type="radio"/>	
10			<input type="radio"/>	
TOTAL SCORE				

WIND _____
 LIGHT _____
 O'CLOCK _____ MILES MIRAGE _____

RIFLE NO. _____ ZERO _____
 PLACE _____ DATE _____ HOUR _____
 AMMUNITION _____

EVENT _____

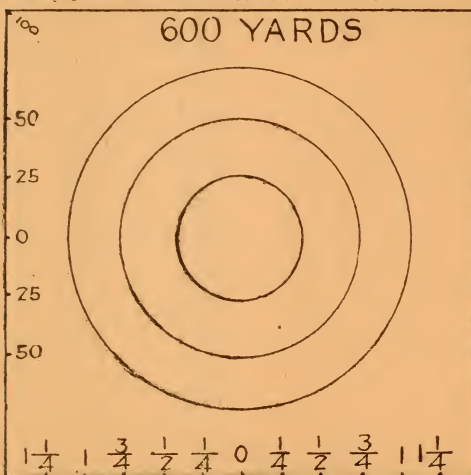


No	Elev	W.G.	Pull	Value
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5			<input type="radio"/>	<input checked="" type="checkbox"/>
1			<input type="radio"/>	
2			<input type="radio"/>	
3			<input type="radio"/>	
4			<input type="radio"/>	
5			<input type="radio"/>	
6			<input type="radio"/>	
7			<input type="radio"/>	
8			<input type="radio"/>	
9			<input type="radio"/>	
10			<input type="radio"/>	
TOTAL SCORE				

WIND _____
 LIGHT _____
 DIRECTION OF SUN _____

RIFLE NO. _____ ZERO _____
 PLACE _____ DATE _____ HOUR _____
 AMMUNITION _____

EVENT _____



No	Elev	W.C.	Pull	VALUE
5			<input type="radio"/>	<input checked="" type="checkbox"/>
5			<input type="radio"/>	<input checked="" type="checkbox"/>
1			<input type="radio"/>	
2			<input type="radio"/>	
3			<input type="radio"/>	
4			<input type="radio"/>	
5			<input type="radio"/>	
6			<input type="radio"/>	
7			<input type="radio"/>	
8			<input type="radio"/>	
9			<input type="radio"/>	
10			<input type="radio"/>	
TOTAL SCORE				

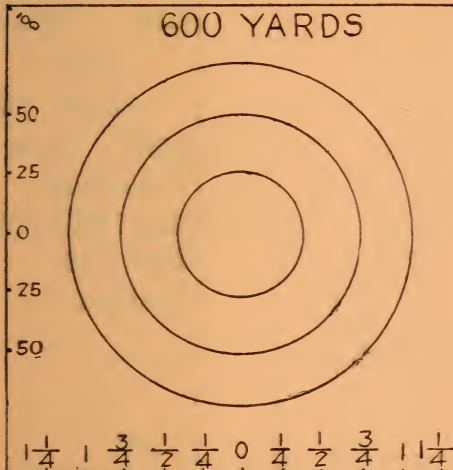
WIND _____ O'CLOCK _____ MILES MIRAGE _____

LIGHT _____

DIRECTION OF SUN _____

RIFLE NO. _____ ZERO _____
 PLACE _____ DATE _____ HOUR _____
 AMMUNITION _____

EVENT _____



No	Elev	W.C.	Pull	VALUE
5			<input type="radio"/>	<input checked="" type="checkbox"/>
5			<input type="radio"/>	<input checked="" type="checkbox"/>
1			<input type="radio"/>	
2			<input type="radio"/>	
3			<input type="radio"/>	
4			<input type="radio"/>	
5			<input type="radio"/>	
6			<input type="radio"/>	
7			<input type="radio"/>	
8			<input type="radio"/>	
9			<input type="radio"/>	
10			<input type="radio"/>	
TOTAL SCORE				

WIND _____ O'clock _____ MILES MIRAGE _____

LIGHT _____

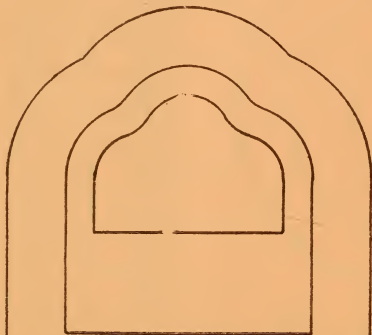
DIRECTION OF SUN _____

RIFLE NO:

ZERO:

AMMUNITION:

PLACE



RANGE YARDS.

DATE HOUR

WIND

O'CLOCK MILES

LIGHT SUN

WIND GAUGE

SLOW FIRE (SIGHTING IN)

RAPID FIRE

AIMED AT

EVENT

SCORE

--	--	--	--	--	--	--	--	--	--

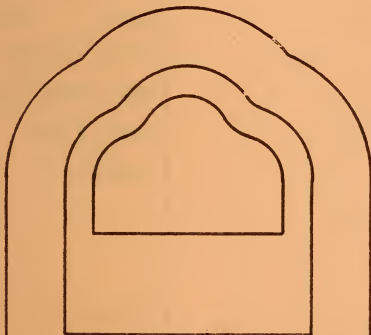
TOTAL SCORE _____

RIFLE NO:

ZERO:

AMMUNITION:

PLACE



RANGE

YARDS.

DATE

HOURL

WIND

O'CLOCK

MILES

LIGHT

SUN

WIND GAUGE

SLOW FIRE (SIGHTING IN)

RAPID FIRE

AIMED AT

EVENT

SCORE

--	--	--	--	--	--	--	--	--	--

TOTAL SCORE _____

RIFLE NO:

ZERO:

AMMUNITION:

PLACE

RANGE YARDS.

DATE HOUR

WIND

O'CLOCK MILES

LIGHT SUN

WIND GAUGE

SLOW FIRE (SIGHTING IN)

RAPID FIRE

AIMED AT

EVENT

SCORE

--	--	--	--	--	--	--	--	--	--

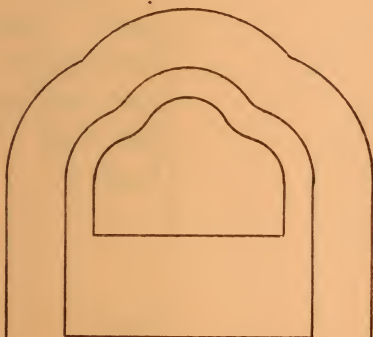
TOTAL SCORE _____

RIFLE NO:

ZERO:

AMMUNITION:

PLACE



RANGE YARDS.

DATE HOUR

WIND

O'CLOCK MILES

LIGHT SUN

WIND GAUGE

SLOW FIRE (SIGHTING IN)

RAPID FIRE

AIMED AT

EVENT

SCORE

--	--	--	--	--	--	--	--	--	--

TOTAL SCORE _____

RIFLE NO:

ZERO:

AMMUNITION:

PLACE

RANGE YARDS.
DATE HOUR

WIND
O'CLOCK MILES

LIGHT SUN

WIND GAUGE

SLOW FIRE (SIGHTING IN)

RAPID FIRE

AIMED AT

EVENT

SCORE

--	--	--	--	--	--	--	--	--	--

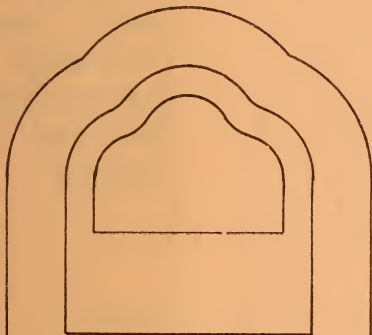
TOTAL SCORE _____

RIFLE NO:

ZERO:

AMMUNITION:

PLACE



RANGE YARDS.

DATE HOUR

WIND

O'CLOCK MILES

LIGHT SUN

WIND GAUGE

SLOW FIRE (SIGHTING IN)

RAPID FIRE

AIMED AT

EVENT

SCORE

--	--	--	--	--	--	--	--	--	--

TOTAL SCORE _____

RIFLE NO:

ZERO:

AMMUNITION:

PLACE

RANGE YARDS.

DATE HOUR

WIND

O'CLOCK MILES

LIGHT SUN

WIND GAUGE

SLOW FIRE (SIGHTING IN)

RAPID FIRE

AIMED AT

EVENT

SCORE

--	--	--	--	--	--	--	--	--	--	--

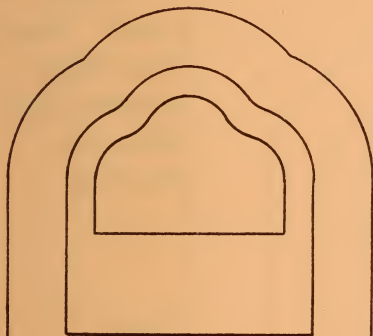
TOTAL SCORE _____

RIFLE NO:

ZERO:

AMMUNITION:

PLACE



RANGE YARDS.

DATE HOUR

WIND

O'CLOCK MILES

LIGHT SUN

WIND GAUGE

SLOW FIRE (SIGHTING IN)

RAPID FIRE

AIMED AT

EVENT

SCORE

--	--	--	--	--	--	--	--	--	--

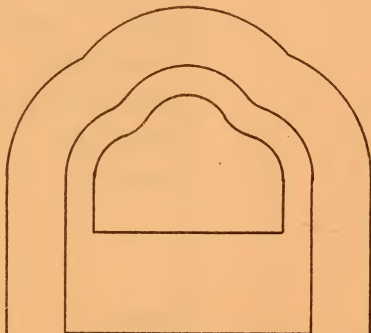
TOTAL SCORE _____

RIFLE NO:

ZERO:

AMMUNITION:

PLACE



RANGE YARDS.

DATE HOUR

WIND

O'CLOCK MILES

LIGHT SUN

WIND GAUGE

SLOW FIRE (SIGHTING IN)

RAPID FIRE

AIMED AT

EVENT

SCORE

--	--	--	--	--	--	--	--	--	--

TOTAL SCORE _____

RIFLE NO:

ZERO:

AMMUNITION:

PLACE

RANGE

YARDS.

DATE

HOURL

WIND

O'CLOCK

MILES

LIGHT

SUN

WIND GAUGE

SLOW FIRE (SIGHTING IN)

RAPID FIRE

AIMED AT

EVENT

SCORE

--	--	--	--	--	--	--	--	--	--	--

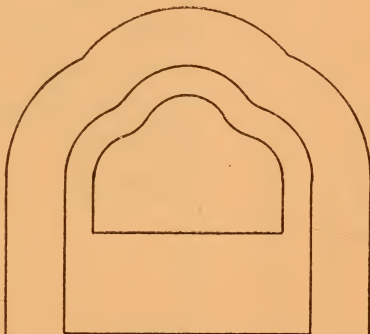
TOTAL SCORE _____

RIFLE NO:

ZERO:

AMMUNITION:

PLACE



RANGE

YARDS.

DATE

HOOR

WIND

O'CLOCK MILES

LIGHT SUN

WIND GAUGE

SLOW FIRE (SIGHTING IN)

RAPID FIRE

AIMED AT

EVENT

SCORE

--	--	--	--	--	--	--	--	--	--

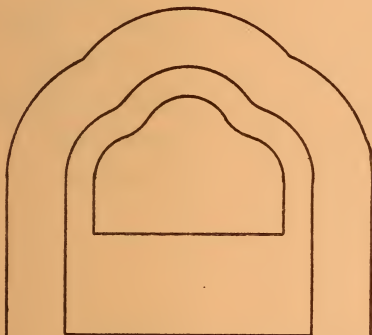
TOTAL SCORE _____

RIFLE NO:

ZERO:

AMMUNITION:

PLACE



RANGE YARDS.

DATE HOUR

WIND

O'CLOCK MILES

LIGHT SUN

WIND GAUGE

SLOW FIRE (SIGHTING IN)

RAPID FIRE

AIMED AT

EVENT

SCORE

--	--	--	--	--	--	--	--	--	--	--

TOTAL SCORE _____

RIFLE NO:

ZERO:

AMMUNITION:

PLACE

RANGE

YARDS.

DATE

HOOR

WIND

O'CLOCK MILES

LIGHT SUN

WIND GAUGE

SLOW FIRE (SIGHTING IN)

RAPID FIRE

AIMED AT

EVENT

SCORE

--	--	--	--	--	--	--	--	--	--

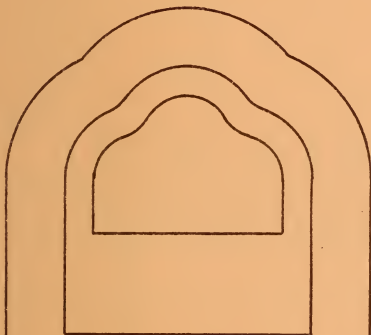
TOTAL SCORE _____

RIFLE NO:

ZERO:

AMMUNITION:

PLACE



RANGE YARDS.
DATE HOUR

WIND
O'CLOCK MILES

LIGHT SUN
WIND GAUGE
SLOW FIRE (SIGHTING IN)
RAPID FIRE
AIMED AT

EVENT

SCORE

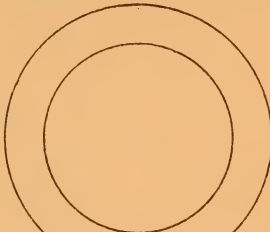
--	--	--	--	--	--	--	--	--	--	--

TOTAL SCORE _____

Event....

Place....

Ammunition

	800 YARDS										-50
											-25
											-0
											-25
											1 1/2

Rifle No.

Zero

Date

Hour

Light

Direction of
SunWind
O'clock

Miles

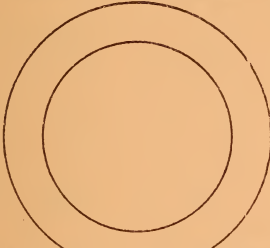
Notes

NO	S	S	1	2	3	4	5	6	7	8	9	10	TOTAL SCORE
Elev													
W.G.													
Pull	○	○	○	○	○	○	○	○	○	○	○	○	
VALUE	X	X											

Event....

Place....

Ammunition

	800 YARDS										-50
											-25
											0
											-25
											1 1/2

Rifle No.

Zero

Date

Hour

Light

Direction of
SunWind
O'clock

Miles

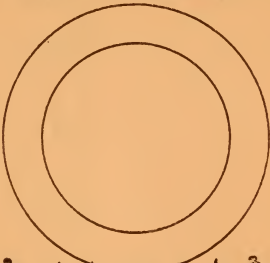
Notes

NO.	S	S	1	2	3	4	5	6	7	8	9	10	TOTAL SCORE
Elev													
W.G.													
Pull	○	○	○	○	○	○	○	○	○	○	○	○	
VALUE	×	×											

Event....

Place....

Ammunition

	800 YARDS										-50
											-25
											-0
											-25
											1 1/2

Rifle No.

Zero

Date

Hour

Light

Direction of
SunWind
O'clock

Miles

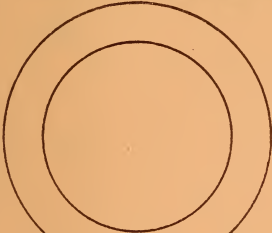
Notes

NO	S	S	1	2	3	4	5	6	7	8	9	10	TOTAL SCORE
Elev													
W.G.													
Pull	○	○	○	○	○	○	○	○	○	○	○	○	
VALUE	X	X											

Event....

Place....

Ammunition

	800 YARDS										-50
											-25
											-0
											-25
											1 1/2

Rifle No.

Zero

Date

Hour

Light

Direction of
SunWind
O'clock

Miles

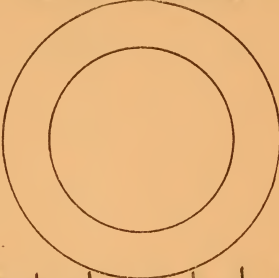
Notes

NO	S	S	1	2	3	4	5	6	7	8	9	10	TOTAL SCORE
Elev													
W.G.													
Pull	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
VALUE	X	X											

Event....

Place....

Ammunition

		1000 YARDS										25 YDS	
												0	
												25 YDS	
												1 1/4	
												1 1/4	
1 1/4	1	3/4	1/2	1/4	0	1/4	1/2	3/4	1	1 1/4	1	1 1/4	

Rifle No.

Zero

Date

Hour

Light

Direction of
SunWind
O'clock

Miles

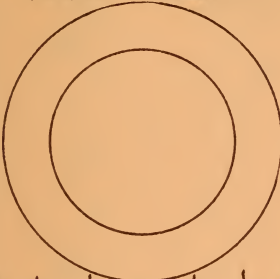
Notes

No	S	S	1	2	3	4	5	6	7	8	9	10	TOTAL SCORE
Elev													
W.G													
Pull	○	○	○	○	○	○	○	○	○	○	○	○	
VALU	×	×											

Event....

Place....

Ammunition

	1000 YARDS										25 YDS
											0
											25 YDS
	$\frac{1}{4}$	1	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{4}$	0	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$\frac{1}{4}$

Rifle No.

Zero

Date

Hour

Light

Direction of
SunWind
O'clock

Miles

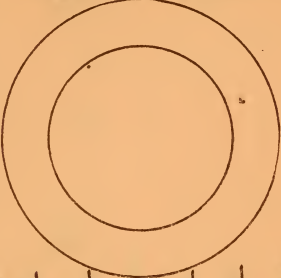
Notes

No.	S	S	1	2	3	4	5	6	7	8	9	10	TOTAL SCORE
Elev													
W-G													
Pull	○	○	○	○	○	○	○	○	○	○	○	○	
Value	×	×											

Event....

Place....

Ammunition

		1000 YARDS										25 YDS	
												0	
												25 YDS	
												1 1/4	
												1 1/4	
		1 1/4	1	3/4	1/2	1/4	0	1/4	1/2	3/4	1	1 1/4	

Rifle No.

Zero

Date

Hour

Light

Direction of
SunWind
O'clock

Miles

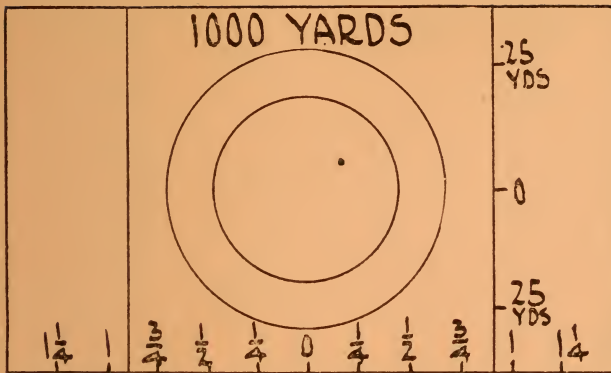
Notes

NO	S	S	1	2	3	4	5	6	7	8	9	10	TOTAL SCORE
Elev													
W.G													
Pull	○	○	○	○	○	○	○	○	○	○	○	○	
VALU	×	×											

Event....

Place....

Ammunition



Rifle No.

Zero

Date

Hour

Light

Direction of
SunWind
O'clock

Miles

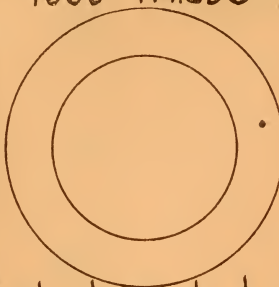
Notes

No.	S	S	1	2	3	4	5	6	7	8	9	10	TOTAL SCORE
Elev													
W.G.													
Pull	○	○	○	○	○	○	○	○	○	○	○	○	
VALU	×	×											

Event....

Place....

Ammunition

	1000 YARDS										25 YDS
											0
											25 YDS
	$\frac{1}{4}$	1	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{4}$	0	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$\frac{1}{4}$

Rifle No.

Zero

Date

Hour

Light

Direction of
SunWind
O'clock

Miles

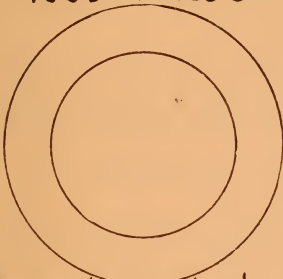
Notes

No	S	S	1	2	3	4	5	6	7	8	9	10	TOTAL SCORE
Elev													
W.G													
Pull	○	○	○	○	○	○	○	○	○	○	○	○	
VALUE	×	×											

Event....

Place....

Ammunition

		1000 YARDS										25 YDS			
												0			
												25 YDS			
$\frac{1}{4}$ 1 $\frac{3}{4}$ $\frac{1}{2}$ $\frac{1}{4}$ 0 $\frac{1}{4}$ $\frac{1}{2}$ $\frac{3}{4}$														$\frac{1}{4}$ 1 $\frac{3}{4}$	

Rifle No.

Zero

Date

Hour

Light

Direction of
SunWind
O'clock

Miles

Notes

No	5	5	1	2	3	4	5	6	7	8	9	10	TOTAL SCORE
Elev													
W-G													
Pull	○	○	○	○	○	○	○	○	○	○	○	○	
VALUE	×	×											

INDEX OF CONDITIONS.

Data of conditions with elevations and windage used, if assembled in an index of conditions, will furnish interesting and valuable information of the effects of conditions and of the zero and normal elevation of your rifle.

On future days you will be able to see at a glance whether you have shot before in same conditions and the elevation or windage used.

An index of conditions is of no use at short ranges. It is recommended for 600 and 1000 yards—especially by those preparing for matches. A separate index is kept for each rifle and for each range.

Index of Conditions.

.....Yards

Rifle No.....

Zero.....

Place	Date	Hour	Direction of Light	Mirage	Wind		Elev.	W. C	Score	Amn.	Page
					0c.	M.					

Index of Conditions.

.....Yards

Rifle No.....

Zero.....

[illegible]

PART IV.

(Extracts from Small Arms Firing Regulations, U. S. Navy, 1917.)

Sights and Alteration of Material.

13. Any kind of sight, peep, open, telescope, or other improvised sight may be used in all firing, and the alteration or substitution of sights, or other accessories to the rifle, with a view of making it more accurate and efficient, is permitted and encouraged, but improved arrangement or modifications shall only be tried when the arrangement as supplied is not altered and can be restored if necessary. Reports upon experiments with sights and other material are desired.

Parapets and Posts.

14. Parapets and posts will be provided on the firing lines on ranges on which the sharpshooter course is to be fired, as follows: At 500 yards a parapet 12 inches high for the prone position, at 400 yards a parapet 24 inches high for the sitting position, at 300 yards a parapet 30 inches high for the kneeling position, at 200 yards posts at least 5 feet above the ground and of a suitable diameter, the larger the better, for the standing position.

15. The firer's position is behind the parapet or post, and the hand, arm, or rifle, must touch the parapet or post.

16. There may be trenches behind the parapet, in which event the height of the top of the parapet above the bottom of the trench or berm where the firer kneels, sits, or rests his elbows, will be as prescribed above.

17. The parapet need not be continuous; spaces in the line will facilitate exit from the trenches and movement forward.

18. Until Navy ranges are provided with parapets and posts, and on ranges not belonging to the Navy where these can not be provided, the firing may be held from the prescribed positions without the rests.

Allowance and Issue of Ammunition.

19. The allowance of small arms ammunition is unlimited.

Definitions and Equivalents.

22. A naval station (not including organized regiment or battalions serving thereat or the marine barracks), a regiment, or battalion of naval personnel or marines, a marine barracks (not including regiments or battalions stationed thereat), a destroyer or other vessel except auxiliaries with civilian crews and submarines, and a division of submarines, are, so far as these regulations are concerned, considered the equivalent of a ship, and all regulations herein applicable to ships are likewise applicable to the equivalents.

23. A detachment of marines, a company, or a submarine, and the officers and men not attached to divisions, are likewise the equivalent of a division.

24. The small arms year is from July 1 to June 30.

25. Annually means the period included in the small arms year.

26. Current enlistment includes extensions to enlistment periods.

Naval Militia.

27. These regulations apply to the Naval Militia.

28. The allowance of ammunition and the payment of prizes from appropriations available for the Naval Militia will be regulated from time to time by the department.

Marines.

30. Officers and men of the Marine Corps afloat and ashore will be governed by these regulations in like manner as officers and men of the Navy.

33. Nothing in these regulations revokes the provisions of the Navy Regulations and Naval Instructions concerning firing under the Army courses.

34. Firing under the Army courses and the qualifications attained thereunder are separate and distinct from the firing and qualifications in the Navy courses, and marines afloat should be given an opportunity to fire the Army courses.

Who Will Fire.

36. When attached to ships in commission, or to divisions, companies, or detachments at stations or barracks ashore, unless circumstances render it impracticable, all officers of the line of the Navy and of the Marine Corps below the rank of lieutenant commander, and all men of the seaman branch of the Navy, and of the Marine Corps, should be required to fire the courses as prescribed.

37. All other officers and men of the line or staff are authorized to fire the courses as prescribed whenever circumstances permit, and when firing is done by officers and men not required to fire, the ship or division to which they are attached will receive credit for the firing in determining the relative standing.

38. A man who re-enlists begins his firing anew, and as an unqualified man; and even though he may have fired any course previously during the year; he is again eligible to compete for prizes.

39. An officer's qualification does not expire.

40. An enlisted man's qualification extends until his enlistment is terminated.

41. Officers who have previously qualified, and enlisted men who have qualified during current enlistment as marksman or sharpshooter, do not fire those courses for credits or for individual competition. Officers and men may fire for credits and men for individual competition the expert rifleman course each year while attached to each division or equivalent until they requalify.

Payment of Prizes.

42. The commanding officer will direct the payment of prizes without delay after the day's firing.

43. When organization commanders render and subscribe pay rolls upon which prizes are awarded, the entry of the prize upon the pay roll thus:

Prize—Marksman, \$1.

Prize—Ships (or station, barracks, regimental, battalion, etc.) team, \$5.

when the pay roll is approved by the commanding officer, is sufficient to authenticate the award of prize.

Insignia.

52. No medals will be awarded for qualification in the Navy qualification courses.

53. Enlisted men of the Navy and Marine Corps and the Naval Militia qualifying as expert rifleman will wear upon the right sleeve of coat, overshirt, jumper, and flannel shirt, about halfway between the wrist and the elbow, a distinguishing mark embroidered in white on blue for blue clothing, and in blue on white for white clothing, and in gray on olive drab (or other color) for olive drab (or other color) clothing as follows: The sides of a square each side one inch long, inclosing a circle three-quarters of an inch in diameter, a circle one-half of an inch in diameter, and a bull's-eye one-quarter of an inch in diameter, the lines to be of narrow width.

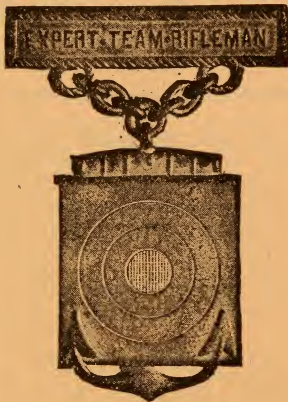
54. These distinguishing marks will be drawn in the same manner as other distinguishing marks from clothing and small stores.

55. Expert riflemen will wear the distinguishing mark from the date of qualification to the end of their enlistments or extended enlistments. Failure to requalify in succeeding years of current enlistment does not remove qualification.

Expert Team Rifleman.

56. In order to encourage team competitions and to distinguish a class of officers and men who have shown superior skill in team competitions, the qualification **expert team rifleman** is established, and a medal will be awarded for the qualification.

57. The requirements for the qualification are qualification as expert rifleman in two separate small arms years and three team credits acquired by membership on an officers' team representing a ship (or equivalent), a division team of a ship's team, standing first in a competition with four or more, second with eight or more teams competing, etc., adding one place for each four teams competing or by membership on any team in a National Team Match.



58. This qualification is awarded only on application of the officer or man claiming eligibility. Applications should be made to the Secretary of the Navy (office of Director of Gunnery exercises and Engineering Performances) or in case of marines to the Major General Commandant, and should state clearly the facts upon which the claim to eligibility is based, giving for each qualification and team credit claimed the approximate date and the ship or station to which the applicant was attached. Commanding officers in forwarding applications will furnish such information from the service and small arms records as will aid in verifying the claims.

59. Only one expert team rifleman medal will be issued to any officer or man. Lost medals may be replaced at the cost of \$21 each.

Credits to Divisions and Ships.

60. The following credits are assigned:

To Divisions and Equivalentents of Divisions.

For each officer or man authorized to fire the course for credits who, during the year and while attached—

- | | |
|--|---|
| (a) Finally qualifies as marksman and no higher..... | 2 |
| (b) Finally qualifies as sharpshooter and no higher..... | 3 |
| (c) Finally qualifies or requalifies as expert rifleman..... | 5 |

(For those who fail to advance in qualification or to requalify as expert rifleman none of the above credits are assigned.)

- | | |
|---|---|
| (d) Fires the pistol course..... | 1 |
| (e) Fires the machine gun course..... | 1 |
| (f) Fires in an individual competition general..... | 1 |
| (g) Fires in a collective fire squad..... | 1 |

For each team—

- | | |
|--|----|
| (h) Entered in a primary team competition..... | 4 |
| (i) Entered in a division team competition..... | 8 |
| (j) Winning \$2 prizes in a division team competition in addition to the credits for entering..... | 16 |
| (k) Winning \$5 prizes in a division team in addition to the credits for entering | 40 |

To Ships and Equivalentents of Ships.

The aggregate of credits to divisions or equivalentents of divisions increased by the following team credits:

For each team—

- | | |
|---|----|
| (A) Entered in a ships team competition..... | 40 |
| (B) Winning \$5 prizes in a ships team competition in addition to the credits for entering..... | 40 |

- (C) Winning \$10 prizes in a ships team competition in addition to the credits for entering..... 80
- (D) Winning \$20 prizes in a ships team competition in addition to the credits for entering..... 160

Figure of Merit.

61. The sum of credits of a division divided by the total number of officers and men in the allowed complement of the division at the end of the year or at the time the report is submitted, whether there are officers or men in excess of, or short of, the complement, is the figure of merit of the division.

62. The sum of all credits of all divisions plus the sum of all credits on account of officers and men not attached to divisions (except flag personnel) plus the sum of all credits on account of ships teams divided by the total number of officers and men (exclusive of flag personnel) in the ships allowed complement whether there are officers and men in excess of, or short of, the complement, is the figure of merit of the ship.

The Target.

82. Target "B" * * * is used for all range firing.

Aiming.

87. There are several different open sight notches on the rear sight, but the peep sight is recommended for all firing.

88. In aiming, the eye should be held as close as possible to the peep; that is, almost up to the comb of the firing pin. Then aim so that the bull's-eye is exactly in the center of the peep hole and the top of the front sight in the center of the bull's-eye.

The Squatting Position.

103. Both feet are flat on the ground and the buttocks clear of the ground. Bend the knees and lower the body, resting both elbows on

the knees, the points of the elbows over the knees. This position is comfortable, steady, and quickly taken.

Rapid Fire.

112. The time limit in all rapid fire and skirmish fire when five shots are to be fired at a target during an exposure is, for rifle fire, 30 seconds, and for pistol fire, 15 seconds, measured at the butts from the command or signal "up" to the command or signal "down." Any faster rate of firing is unprofitable.

Skirmish.

125. Targets are exposed for 30 seconds for each range, and the interval from the disappearance of the target for one range to its appearance for the next range is 1 minute and 30 seconds.

126. The entire advance from range to range on skirmish is at double time.

127. After the firing is finished at 500, 400, and 300 yards, while refilling magazines and until the command "Forward," the firers remain in the position from which they fired. The setting of the sights for next range should be delayed until orders for sight setting at that range are received.

128. Coaches should accompany skirmishers on the skirmish run until the run is finished at 200 yards.

129. The skirmish begins at 500 yards. Form the skirmishers in line in rear of the firing line, each with 20 rounds (4 clips) of ammunition. Assign each man to a target. Take a record showing the number of the run, the names of the men, and the number of the target assigned to each man. Command **FILL MAGAZINES, LOAD AND LOCK. CALL OFF.** Each man in turn calls off the number assigned to him. Then, when the "ready in the butts" signal appears at the butts, **FORWARD, MARCH.** When at the firing line, **HALT, LIE DOWN, 500 YARDS, WINDAGE—, SET YOUR**

SIGHTS, UNLOCK PIECES, FIVE ROUNDS WHEN THE TARGETS APPEAR. Then inform the butts "Ready on the firing line." When the targets disappear, command FILL MAGAZINES, LOAD AND LOCK. Then when all rifles seem to be loaded and locked, FORWARD, DOUBLE TIME, MARCH. When arrived at the 400-yard range, command HALT, SIT OR SQUAT, 400 YARDS, WINDAGE—, SET YOUR SIGHTS, UNLOCK YOUR PIECES, FIVE ROUNDS WHEN THE TARGETS APPEAR; similarly advance to 300 yards and kneel, and then to 200 yards and stand, use post rest. When finished at 200 yards, command PORT ARMS, OPEN CHAMBERS, LEAVE YOUR CHAMBERS OPEN. The firers are then marched back to the starting point.

130. When ready in the butts display the disk at a designated target. When notified "Ready on the firing line," stand by is given, the disk is withdrawn, and about five seconds later start the stop watch or note the time, and give the commands or signals, and the directions, at the time shown below, assuming the second hand to start from 0.

0 Up.	2.25 Stand by.	4.30 Down.
25 Stand by.	2.30 Down.	5.55 Stand by.
30 Down.	3.55 Stand by.	6.00 Up.
1.55 Stand by.	4.00 Stand by.	6.25 Stand by.
2.00 Up.	4.25 Stand by.	6.30 Down.

132. When there are more than 20 hits on any skirmisher's target, his run is void and must be repeated.

Changing Positions Fire.

134. For each string each target is exposed five times and the firer fires one shot at each exposure. The target is exposed for five seconds, and five seconds elapse from its disappearance to its appearance again.

135. The sequence of positions is: Prone—Kneeling—Squatting—Kneeling—Prone. After firing the first shot in the prone position, the firer kneels for the second shot, squats for the third, kneels for the

fourth, and lies down for the fifth. At the successive disappearances of the target, the commands or cautions **Kneel—Squat—Kneel—Lie Down** may be given. The firers may change position immediately after firing without waiting for the command or caution.

137. Except as prescribed above, the procedure on the firing line is the same as in rapid fire.

138. **In the butts** the requirements and procedure are the same as at rapid fire, except that five seconds after the first command or signal "up" the command or signal "down" is given. Then five seconds later "up" is given, five seconds later "down," and so forth until the targets have been displayed for five shots. One shot is fired on each appearance.

Individual Prizes.

144. When the marksman, sharpshooter, expert rifleman, pistol, and machine gun courses or the individual competition general are fired, individual prizes will be awarded the enlisted men making the highest aggregate scores among those in their own division or class who are entitled to compete.

145. **The number of individual prizes** to be awarded in each course and for each class will be determined by the number of times 8 is contained in the number of men in the division or class completing the course who are entitled to compete.

146. No man will be awarded a prize in the marksman, sharpshooter, or expert rifleman courses unless he makes a qualifying score in the competition.

147. **Men of a division will generally compete among themselves**, and not with men of other divisions, for individual prizes, provided that when detachments are formed to fire on distant ranges, and also in cases of men not attached to divisions, and also when commanding officers consider this requirement inexpedient, it may be disregarded, and in these cases classes may be organized as circumstances permit.

Men of a division may be further divided into separate classes of not fewer than eight men, in which event due information should be given to the firers.

148. It is required in all competitions that all competitors be then and there present together. When practicable classes competing for prizes should complete each course before leaving the range. When this is not done men who have not fired the entire course together will not be included in the same class for prizes.

Marksman Course.*

151. Officers who have never, and men who during current enlistment have not, qualified as marksman fire the marksman course.

152. The course may be repeated as often as practicable until qualification is attained.

153. All firing in this course is at 200 yards.

154. No rest is used.

155. The course is as follows:

Slow fire: 5 prone—5 kneeling—5 squatting—5 standing. Total, 20 shots.

Rapid fire: 5 prone—5 kneeling—5 squatting—5 standing. Total, 20 shots.

Changing positions fire: Four strings of 5 shots each. Total, 20 shots.

Aggregate number of shots (one bandoleer)	60
---	----

Possible aggregate score	300
--------------------------------	-----

Aggregate score necessary to qualify as marksman	225
--	-----

Or a total score in changing positions fire of	75
--	----

Provided that the changing positions fire must have been fired as a part of the complete course.

156. Those who fail to qualify as marksman are unqualified. There are no classes below marksman.

157. Only men who during current enlistment have not qualified as marksman or higher are eligible to compete for prizes in the marksman course.

*The marksman course adopted by the National Rifle Association for civilian clubs is this course minus the changing positions fire. Necessary to qualify, an aggregate score of 150, or total score in rapid fire of 75.

158. Men who have fired the course previously and failed to qualify may compete for prizes.

159. The value of a prize in the marksman course is \$1.

Sharpshooter Course.*

160. Officers who have previously and men who during current enlistment have qualified as marksmen, and no higher, fire the sharpshooter course.

161. The course may be repeated as often as practicable until qualification is attained.

162. All firing in this course is from a rest. The arm, hand, or rifle must touch the parapet or post. (See paragraph 18.)

163. The course is as follows:

Range.	Position.	Number of shots.		
		Slow fire.	Rapid fire.	Skirmish.
200	Standing, post rest	5	5	5
300	Kneeling, either or both knees, parapet rest .	5	5	5
400	Sitting or squatting, parapet rest	5	5	5
500	Prone, parapet rest	5	5	5
	Total number of shots	20	20	20
	Possible score	100	100	100
Aggregate number of shots (one bandoleer)				60
Possible aggregate score				300
Aggregate score necessary to qualify as sharpshooter				225
Or a total score on skirmish of				75

Provided that the skirmish must have been fired as a part of the complete course.

*The sharpshooter course adopted by the National Rifle Association for civilian clubs is this course minus the rapid fire. Necessary to qualify, an aggregate score of 150, or a total score in skirmish of 75.

165. Only men who, during current enlistment, have qualified as marksmen, and no higher, are eligible to compete for prizes in the sharpshooter course.

166. Men who have fired the course previously and failed to qualify may compete for prizes.

167. The value of a prize in the sharpshooter course is \$2.

Expert Rifleman Course.*

180. Officers who have previously, and men who during current enlistment, have qualified as sharpshooters or expert rifleman, fire the expert rifleman course.

181. The course may be repeated in each year while attached to each division as often as practicable until qualification or requalification is attained.

182. All firing in this course is at 500 yards.

183. No rest is used.

184. The course is as follows:

Slow fire: 5 prone—5 kneeling—5 squatting—5 sitting. Total, 20 shots.

Rapid fire: 5 prone—5 kneeling—5 squatting—5 sitting. Total, 20 shots.

Changing positions fire: Four strings of 5 shots each. Total, 20 shots.

Aggregate number of shots (one bandoleer)	60
---	----

Possible aggregate score	300
--------------------------------	-----

Aggregate score necessary to qualify or requalify as expert rifleman	210
--	-----

Or a total score in changing positions fire of	70
--	----

Provided that the changing positions fire must have been fired as a part of the complete course.

185. Failure to requalify does not remove qualification previously attained during current enlistment.

*The expert rifleman course adopted by the National Rifle Association for civilian clubs, is this course minus the rapid fire. Necessary to qualify, an aggregate score of 140, or a total score in changing positions fire of 70.

186. Only men who, during current enlistment, have qualified as sharpshooter and no higher, and men who, in previous year of current enlistment, have qualified or requalified as expert rifleman and who, during current year have not qualified or requalified as expert riflemen are eligible to compete for prizes in the expert rifleman course, provided that when an expert rifleman is transferred to a different division he is again eligible to compete during the year.

187. Men who have fired the course and failed to qualify or requalify may compete for prizes.

188. The value of a prize in the expert rifleman course is \$3.

Machine Gun Course.

200. This course is for any machine gun or automatic rifle issued to the service for use with small arms ammunition.

201. Each officer and man may fire this course once per year while attached to each division.

202. The course may be fired at any range.

203. The course is 60 shots for each firer.

Possible score 300.

204. Not over 5 extra shots may be fired slow fire fashion preliminary to each course. These shots are not counted in the score.

205. After each string of 60 shots the score is taken in the butts and communicated, preferably by telephone, to the firing line and there bulletined for the information of the competitors.

206. The classes for prizes are composed of the enlisted men who fire the gun. The coaches and helpers are not included in classes for competition except when they fire the gun.

207. All the members of a class of competitors may fire the same gun, or they may fire different guns.

208. The value of a prize in the machine gun course is \$1.

Individual Competition General.

213. In addition to the prizes awarded in connection with the qualification courses an individual competition general for prizes is authorized. Each officer and man may fire this course for credits once each year while attached to each ship or station.

214. The firing may be at any range and a target of any size may be used.—Reduced charge or small caliber ammunition may be used provided it is fired from the service rifle.

215. No rest is used.

216. The course is as follows:

Slow fire: 5 prone—5 kneeling—5 squatting—5 sitting. Total, 20 shots.

Changing positions fire: Two strings of 5 shots each. Total, 10 shots.

Aggregate number of shots 30

218. All men are eligible to compete for this prize once per year while attached to each division or equivalent. The arrangement of men into classes according to their qualification is suggested.

219. The value of a prize in the individual competition general is \$1.

Team Competitions.

220. Primary team competitions, division team competitions, and ships team competitions are authorized. Not more than two officers may fire on a team, but no money prizes will be paid to officers, nor will the prize to enlisted members of the team be increased by reason of prizes not paid to officers.

221. In division team competitions and in ships team competitions the teams competing at the same time may be divided into separate competitions beforehand, or the same number and character of prizes may be awarded according to standing in whole list as if such division had been made.

Teams from the Navy, Marine Corps, and Naval Militia may compete for prizes and credits with teams from the Coast Guard, Army and National Guard and with civilian or other teams, but prize money from Navy Department appropriations available to Navy, Marine Corps, or Naval Militia teams can not be paid to other teams.

Primary Team Competition.

223. Two or more teams from the same division, each team to consist of four firing members, will compete. Each officer and man is authorized to fire in one primary team competition annually.

224. The course to be fired by each member of the team is the course prescribed for the individual competition general.

225. The value of the prize is \$1 to each man of the team making the highest aggregate team score.

Division Team Competition.

226. Teams for a division team competition will consist of one team of eight firing members from each division competing.

227. Each division may enter one team in two competitions for prizes and credits annually. Not more than one of these competitions may be arranged with similar teams of other ships or shore stations or with other teams.

228. Ships whose personnel is not organized into divisions may enter one team in two division team competitions for prizes and credits annually with other teams.

229. The course to be fired by each member of a team is the course prescribed for the individual competition general.

230. When fewer than four teams compete, the value of the prize is \$2 to each man of the team making the highest aggregate team score. When four or more teams compete, the value of the prize is \$5 to each man on the team making the highest aggregate team score.

Ships Team Competition.

231. Teams for a ships team competition will consist of eight firing members from each ship competing.

232. Each ship is authorized to enter one team in two competitions for prizes and credits annually.

233. When a number of ships are in company and have access to a range, and the circumstances permit, a competition for all ships which have not already entered two ships competitions since the beginning of the target year, should be held under the direction of the senior officer present. Fleet matches are held under the above provisions.

234. Commanding officers are authorized to arrange for competitions whenever the circumstances permit.

235. The course to be fired by each member of the team is the expert rifleman course plus a skirmish run. The skirmish run should be fired after the rapid fire and before the changing positions fire, but the officer in charge of the competition may change the order of firing for reasons of expediency.

236. In team competitions, in each skirmish run, there will be an equal number of skirmishers from each team, and in the commands for the run the announcement of windage will be omitted. Not more than one representative or member of a team may accompany each of its skirmishers in each run and coach them.

237. When fewer than four teams compete, the value of the prize is \$5 to each man of the team making the highest aggregate team score.

When four or more teams compete, the value of the prize is \$10 to each man on the team making the highest aggregate team score. When eight or more teams compete, the value of the prize is \$20 to each man on the team making the highest aggregate team score and \$10 to each man on the team making the second highest aggregate team score.

Collective Fire Course.

238. The object of this course is to give officers and petty officers experience in controlling and directing fire, and to give officers and men experience in fire discipline. The skirmish runs of the sharpshooter course afford experience in delivering fire with counted cartridges. The collective fire course is designed to afford experience in delivering volleys.

239. Collective fire will be held by squads of exactly eight firers, each squad commanded by an officer or enlisted men, or by groups of such squads firing simultaneously. When the firing party consists of more than one squad the commands for firing may be given by the commander of the whole, or by the squad commanders, as the officer in charge directs. Squad commanders will be charged with maintaining in their respective squads the discipline of the firing line. Squad commanders will not be armed with rifles.

240. One target will be provided for each squad.

241. The course will consist of the same number of shots for each man at the same ranges and from the same positions as for the skirmish. The firing will be by volleys. Thus at each range five volleys will be fired. There is no time limit.

245. Form the squads in line of skirmishers, each man with 20 rounds of ammunition (four clips). Assign each squad to one target. Take a record showing the names of men in each squad, the name of the squad commander, and the number of the target assigned to each

squad. The targets should now be exposed and ready to fire upon. Command FILL MAGAZINES, LOAD AND LOCK, FORWARD MARCH, HALT, LIE DOWN, 550 YARDS, WINDAGE—, SET YOUR SIGHTS, UNLOCK PIECES, AT YOUR OWN TARGET, SQUAD (SECTION OR COMPANY) AIM, FIRE, SQUAD (SECTION OR COMPANY) AIM, FIRE, etc., until five volleys have been fired. After each volley the firers reload from magazine without command. Then FILL MAGAZINES, LOAD AND LOCK, then FORWARD, DOUBLE TIME, MARCH, etc. When finished at 200 yards, command PORT ARMS, OPEN CHAMBERS, LEAVE YOUR CHAMBERS OPEN. Then march the squads off the range. The advance from range to range will be in double time, and the same rests will be used as in the skirmish.

246. **Collective fire can be conducted along with skirmish runs.** A convenient time to hold collective fire is immediately following the skirmish runs of the sharpshooter course.

247. **Regular values are assigned to the hits.**

248. The target is not marked until the end of the run. The scores should then be telephoned to the firing line and there bulletined for the information of the competitors.

249. Each officer and man may fire in one collective fire squad per year when attached to each division.

250. When two or more squads which are present together on the range fire the collective fire course a prize will be awarded to each enlisted man firing in the winning squad. Officers may fire in the squads, but no prize money will be paid to officers.

251. When practicable squads should be composed of men from the same division, and when two or more squads are present from a division they will compete together and not with squads from other divisions, except that a single squad may be added if there is no other way to include it in a competition.

252. **The value of a prize to each man of the winning squad in the collective fire course is 50 cents times the number of squads competing.**

The Pistol Course.

253. Each officer or man may fire the pistol course for credits once per year while attached to each division.

254. The firing in the pistol course may be done at any range.

255. Any target may be used.

256. The course is as follows:

Position.	Slow fire.	Rapid fire.
Prone	5 shots	1 string of 5 shots.
Kneeling	5 shots	1 string of 5 shots.
Squatting	5 shots	1 string of 5 shots.
Standing	5 shots	1 string of 5 shots.
Total number of shots	20	20

Aggregate number of shots	40
Possible aggregate score	200

257. All men are eligible to compete for prizes in this course once per year while attached to each division.

258. The value of a prize in the pistol course is \$1.

259. When scoring in the pistol courses, in order to prevent the markers from knowing the names of the individuals who are firing, the name of the firer will not be announced by the scorer, but the number of the target he fires upon will be substituted for his name.

260. Before automatic pistols are brought to a range, the magazines should be removed and kept removed at all times except while the pistol is in actual use at the firing point.

261. Under no circumstances should any one handle a pistol, loaded or unloaded, except when he is on the firing line fully abreast of the firers, and the pistol should never be pointed in any other direction than the front.

Notes on Pistol Practice.

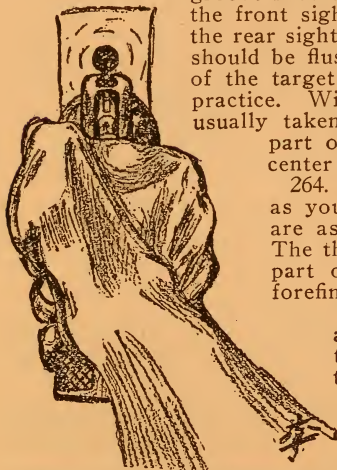
262. When a pistol is first taken in hand it should be examined to make sure that it is not loaded.

263. Both the front sight and the rear sighting groove should be blackened. When the pistol is aimed the front sight should be seen through the middle of the rear sighting groove and the top of the front sight should be flush with the top of the groove. The part of the target to be aimed at must be determined by practice. With most pistols at 25 yards the aim is usually taken at the bottom edge or in the bottom part of the bull's-eye, and at 50 yards in the center or in the upper part of the bull's-eye.

264. Grasp the stock of the pistol as high up as you can so that the barrel, hand, and arm are as nearly as possible in one straight line. The thumb should be extended along the upper part of the frame. The second joint of the forefinger should be on the trigger.

265. Start with a light grip and gradually squeeze with the whole hand, the trigger finger squeezing gradually back as the grip is tightened, and continue squeezing without a jerk until the pistol fires. Decide to call the hold and to keep the right eye open.

266. If the hits are bunched to one side they can be moved to the right by increasing the pressure of the thumb against the left side of the pistol or to the left by decreasing the pressure.



Aiming at the bottom edge of the bull's-eye. The point aimed at varies with the pistol and with the range.

267. **Snapping**—that is, aiming and squeezing the trigger with the pistol not loaded—is most valuable practice. No man should load and fire until he has snapped several times to get acquainted with the trigger pull of the pistol. Expert pistol shots do a great deal of snapping instead of a great deal of firing. Steady holding can be acquired only by much snapping practice.

268. In the prone position the right elbow has excellent support on the ground. In the kneeling position the firer may kneel on either knee. Kneeling on the left knee affords an excellent rest on the right knee for the elbow. In the squatting position both elbows rest on the knees. In the standing position face the target squarely, or nearly so. Stand upright, not craning the head forward, and extend the arm to its full stretch.

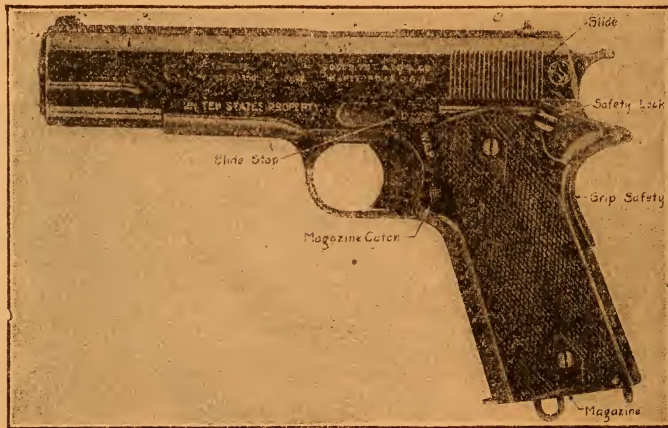
269. **A coach should be at each firing point.** In addition to the general duties of a coach, his specific duties in pistol practice are: (1) to stand slightly behind the right side of the firer in order to prevent the pistol being pointed away from the front, (2) to see that the pistol is not loaded until the proper time, (3) to require the firer to explain the line of sight, (4) to see that the firer takes the proper position and holds the pistol properly, (5) to require the firer to snap several times and to call the hold, (6) to see that the firer loads properly, and (7) to see that the pistol is unloaded before it leaves the firer's hands.

Mechanism of the Pistol.

270. **To thoroughly familiarize men with the mechanism of the pistol** they should be required to dismount and assemble its parts; squad classes under an instructor should be used for this purpose.

271. When the slide is in its forward position and the hammer is full cocked, push the safety lock up to lock the hammer.

272. The grip safety at all times automatically locks the trigger unless the grip safety is pressed in by firmly grasping the handle as in the firing position.



Automatic pistol, caliber .45.

When the slide is drawn fully back to its rear position, if the magazine is empty the slide stop automatically locks the slide in its open position; if the magazine is not empty, and there is no jam, the slide when released will spring to its forward position unless it is locked by pressing the slide stop up into the recess on the slide.

When the pistol is fired and the slide remains open, it indicates either that the magazine is empty or that there is a jam.

273. To relieve a jam it is often necessary to remove the magazine.

274. To remove the magazine, press the magazine catch.

275. To load, charge the magazine with any number of cartridges from one to seven (with five for a string in the Navy courses); insert the magazine into the hollow of the handle with a quick continuous movement until the click of the magazine catch is heard; then draw the slide fully back and release it, thus cocking the pistol and bringing the first cartridge into the chamber. The pistol is now ready for firing.

276. With the magazine empty, the pistol can be used as a single loader by drawing back the slide, inserting a cartridge in the chamber, and pressing down the slide stop to release the slide.

As a safety precaution, with inexperienced firers, the pistol should be used as a single loader in slow fire, the coach keeping the ammunition in his possession and inserting single cartridges in the pistol for the firer.

277. After the pistol is single loaded (and locked as a safety precaution), a filled magazine may be inserted; the pistol then carries eight cartridges ready for use.

It is dangerous, however, to carry the pistol thus loaded, and, except in emergencies, the pistol should be carried with the chamber empty. When cartridges are in the magazine, to cock, load the chamber, and fully prepare the pistol for use it is only necessary to draw the slide fully to the rear and release it.

278. Pressure must be entirely relieved from the trigger after each shot in order that the trigger may re-engage the sear.

279. To inspect a pistol to see that it is unloaded, or to unload it, draw the slide to the rear and release it as often as is necessary until

it automatically remains in the open position. If loaded, each time the slide is drawn to the rear a cartridge will be ejected.

280. **With the revolver**, to load, unload, or inspect it to see whether it is loaded, hold the revolver in the left hand, cylinder in the palm of the hand, muzzle pointing to the front or in a safe direction; unlatch and open the cylinder. In closing the cylinder press it home smartly until it clicks, and then verify latching by pressing against the right side of the cylinder. The revolver is injured and often disabled by attempting to operate the trigger or hammer when the cylinder is not fully home and latched. With the revolver always, even in rapid fire, use the single action; that is, cock it before firing each shot. The trigger pull of the double action is so heavy that it is impossible to keep the aim in using it. It can be easily cocked by removing the finger from the trigger, raising the muzzle to the right, moving the right hand up on the stock, and placing the thumb across the hammer. This should be practiced until it can be done readily.

PART V.

ARMY SPECIAL COURSES

Special Course A.

Instruction Practice.—Slow fire, target A; slow fire, target D; rapid fire, target D.

Record Practice.—Slow fire, target A; rapid fire, target D.

A special classification is provided for all those who fire Special Course "A," as follows:

Marksman 150; first-class man, 120; second-class man, 100; unqualified, all who fail to qualify as second-class men or better and those who for any reason did not fire the course, and are not otherwise classified.

Instruction Practice.

TABLE 1.—Slow fire, target A.

Range.	Time.	Shots.	Position.
200	No limit.	15	<div style="display: inline-block; vertical-align: middle;"> <div style="display: inline-block; vertical-align: middle;">5 prone.</div> <div style="display: inline-block; vertical-align: middle;">5 kneeling.</div> <div style="display: inline-block; vertical-align: middle;">5 standing.</div> </div>
300		10	<div style="display: inline-block; vertical-align: middle;"> <div style="display: inline-block; vertical-align: middle;">5 prone.</div> <div style="display: inline-block; vertical-align: middle;">5 sitting.</div> </div>

TABLE 2.—Slow fire, target D.
(Battle sight only will be used.)

Range.	Time.	Shots.	Position.
200	No limit.	10	{ 5 kneeling. 5 standing.
300		10	{ 5 prone. 5 sitting.

TABLE 3.—Rapid fire, target D.
(Battle sight only will be used.)

Range.	Time.	Shots.	Position.
200	1 minute.	10	Kneeling or sitting from standing.
300	1 minute. 10 seconds.	10	Prone from standing.

Record Practice.

TABLE 4.—Slow fire, target A.

Range.	Time.	Shots.	Position.
200	No limit.	10	{ 5 kneeling. 5 standing.
300		10	{ 5 prone. 5 sitting.

Rapid fire as given in Table 3.

SPECIAL COURSE WHEN TIME OR FACILITIES FOR REGULAR COURSES ARE NOT
AVAILABLE.

This course will be prescribed for the quick training of troops in rifle practice, when time or facilities for the regular courses are not available.

Success can not be expected, nor can proficiency in rifle practice be attained by a company in this course unless it has been thoroughly instructed, and each man should satisfactorily pass the prescribed tests before he fires a shot on the range. Without this thorough preliminary course, and satisfactorily passing these tests, it is a waste of ammunition to let the soldier fire ball cartridges on the range.

The soldier is first given a thorough course of preliminary practice as outlined in paragraphs 1 to 70, inclusive. He is then, before being allowed to fire a shot on the target range, given the following tests:

TEST I.—*Nomenclature of the rifle* in so far as is necessary for its efficient care and use.

TEST II.—*Assembling and disassembling of the rifle* in so far as is necessary for its efficient care and use.

TEST III.—*Care of rifle.*

TEST IV.—*Sight-setting:* Normal and peep, with and without deflection. Maximum time limit of 10 seconds in each of not less than 5 consecutive trials.

TEST V.—*Firing positions:*

- (a) Standing.
- (b) Kneeling.
- (c) Sitting.
- (d) Prone.
- (e) From parapet, wall top, or other under-rifle rest.
- (f) From vertical edge of wall, door, window, tree, or similar position.

TEST VI.—*Loading from belt*, pockets fastened, with a clip of dummy cartridges in position:

Standing, kneeling, sitting, prone. Maximum time limit of 10 seconds each in best 5 out of 7 consecutive trials.

TEST VII.—*Sighting*: With rifle in sighting rest. (Third sighting exercise, par. 27.)

Normal sight, peep sight. Proficiency required in three consecutive triangles of sighting with each. Distance, 20 feet; no side of triangle to exceed one-half inch.

TEST VIII.—*Aiming combined with trigger squeeze:*

Test by means of—

- (a) Target machine,
- (b) Aiming-rod device,
- (c) Belgium aiming device, or
- (d) Perforated bull's-eye over instructor's eye.

(Methods used to be noted by abbreviations M, R, B, and P, respectively.)

- (a) Standing,
- (b) Kneeling,
- (c) Sitting, and
- (d) Prone.

TEST IX.—*Rapid loading, aiming, and firing:* Load from belt and simulate fire with two clips of dummy cartridges. Tested by means of:

- (a) Aiming-rod device, or
- (b) Belgium aiming device, or
- (c) Perforated bull's-eye over instructor's eye.

(Method used to be denoted by abbreviations, R, B, and P, respectively.)

In positions:

- Standing,
- Kneeling,
- Sitting, and
- Prone.

Time of each—

- 1 minute,
- 1 minute, 10 seconds,
- 1 minute, 10 seconds, and
- 1 minute, 20 seconds, respectively.

TEST X.—*Flinching:*

In prone position. The rifle will be so manipulated by the instructor that the man under test does not know whether or not it is loaded. Service ammunition to be used.

KNOWN DISTANCE PRACTICE.

An annual allowance of 150 rounds per man is authorized for known distance practice, which includes short range practice, midrange practice, and practice with telescopic sights.

SHORT RANGE PRACTICE.

All firing from a typical trench, bayonet fixed except as noted, rifle resting on parapet.

Instruction.

TABLE 1.—*Slow fire.*

Range.	Time.	Shots.	Target.	Position and type of trench.	Sight.
<i>Yards.</i>					
100	No limit . . .	10	A-4..	Prone	Leaf.
200 . . . . .	.. do.	10	A-4..	Standing	5 leaf and 5 battle sight.
300 ¹ . . . . .	.. do.	15	A-4..	.. do.	10 leaf and 5 battle sight.

¹ One-half of firing with leaf sight at this range will be with bayonet not fixed.

105 points out of possible 175 in slow fire at bull's-eye target necessary to advance to slow fire at figure target.

TABLE 2.—*Slow fire.*

Range.	Time.	Shots.	Target.	Position and type of trench.	Sight.
<i>Yards.</i>					
100	No limit . . .	5	Head .	Prone	Leaf.
200	do.	5	F . . .	Standing	do.
300	do.	5	F . . .	do.	do.

9 hits out of possible 15 required to advance to rapid fire.

TABLE 3.—*Rapid fire.*

Range.	Time.	Shots.	Target.	Position and type of trench.	Sight.
<i>Yards.</i>					
100	One minute . .	¹ 10-20	Head .	Prone	Leaf.
200	do.	10	F . . .	Standing	do.
300	do.	10	F . . .	do.	do.

¹ At this range the soldier must fire 10 rounds; he may fire as many more as he can up to 20 rounds, and receive credit for every hit he makes. Soldier is penalized 1 point for each round less than 10 that he does not fire.

18 hits out of possible 40 required to advance to record practice.

Soldiers who fail to make the necessary points to advance are given further instruction practice to the limit of the ammunition allowance.

Record.

TABLE 4.—*Rapid fire.*

Range.	Time.	Shots.	Target.	Position and type of trench.	Sight.
<i>Yards.</i>					
100	One minute .	¹ 10-20	Head .	Prone	Leaf.
200 . . . . .	.. do.	10	F . . .	Standing	do.
300 . . . . .	.. do.	10	F . . .	.. do.	do.

¹ At this range the soldier must fire 10 rounds; he may fire as many more as he can up to 20 rounds, and receive credit for every hit he makes. Soldier is penalized 1 point for each round less than 10 that he does not fire.

Total shots, 130.

Mid Range Practice.

For all men who have made 25 hits or more in record practice.

TABLE 5.—*Slow fire.*

Range.	Time.	Target.	Shots.	Position.
<i>Yards.</i>				
500	No limit . . .	B	10	Prone.
600 . . . . .	.. do.	B	10	do.

Every effort will be made to teach the men the effect of wind, light, and temperature and the value of small changes in elevation and windage.

No report of this firing will be required, although a record of it will be kept in each company.

PRACTICE WITH TELESCOPIC SIGHTS.

After mid range practice has been completed, the four best enlisted shots of the company will fire as prescribed in paragraph 117.

COMBAT PRACTICE.

Combat practice, individual and collective, will be fired by an organization after the completion of the known-distance practice.

An annual allowance of 50 rounds of ammunition per man, to be expended under the direction of the regimental commander, is authorized for this practice.

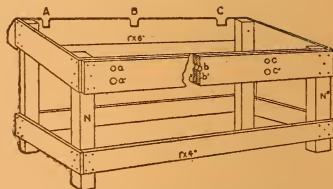
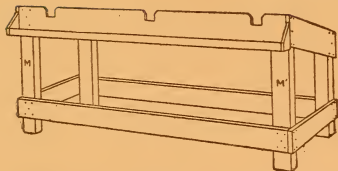
TARGETS.

Target A-4 is the A target as described in paragraph 258 cut down to 4 feet square. The rapid fire is conducted as at present prescribed under Procedure Rapid Fire, page 71, with the exception that at all ranges the soldier assumes the firing position before the command "Ready" is given.

The head target is the top of the E target cut off 12 inches from the top. (*C. S. A. F. M., No. 19, Aug. 10, 1917.*)

CLEANING RACK AND CLEANING RODS.

Cleaning Rack.



The rifle rests in *Aa*, *Bb*, or *Aa'*, *Bb'*, etc., the muzzle being inserted in hole *a*, or hole *a'*, etc. Holes *a*, *b*, etc., are drilled through; holes *a'*, *b'*, etc., are drilled half-way through as illustrated. The square cuts *A*, *B*, etc., are of sufficient width to receive snugly small of gun stock. Distance *A* to *a* is such that trigger guard will bear snugly against inside face of *A*. Front legs (*M* and *M'*) are 36" long. Rear legs (*N* and *N'*) are slightly shorter (30" long) than (*M* and *M'*) giving rifle a slope. Distance from *A* to *B*; *B* to *C*, etc is 24". Notice shelf in front.

A rack built for use on both sides is preferable to the one illustrated here. It should be provided with pockets for clean rags, oil soiled rags, etc., and a shelf for cleaning rods.

Cleaning Rod

When the habit of cleaning a rifle from the muzzle prevailed, the use of a brass cleaning rod became favored because brass being softer than steel did not injure the muzzle so much. Now that the habit of cleaning from the breech has become general, brass rods are no longer preferable because they bend so easily and become crooked. A steel rod $\frac{1}{4}$ of an inch in diameter, 40 inches long, with a swivel handle is the best.

Neither the short brass cleaning rod nor the 3-section jointed rod are long enough, and to use them necessitates cleaning from both ends and men should never clean from the muzzle end. Suitable steel cleaning rods should be provided at the cleaning racks.



REMOVAL OF METAL FOULING.

Formula for Ammonia "Dope":

Ammonia persulphate	1 ounce
Ammonia carbonate	200 grains (about $\frac{1}{2}$ ounce)
Water	4 ounces
Aqua Ammonia (Commercial 28%)	6 ounces

Thoroughly pulverize the ammonia carbonate crystals. (A wedge wood mortar and pestle is usually used for this.) Then place the carbonate and persulphate in a 12-ounce glass bottle with rubber stopper (ordinary magnesia bottles obtainable at drug stores) and add 4 ounces of water (the bottle is now a little over $\frac{1}{3}$ full). Shake until all crystals are dissolved. The persulphate dissolves readily, the carbonate slowly. Then add 6 ounces of aqua ammonia, almost filling the bottle, and keep bottle tightly corked. This will "dope" about seven rifles.

A rounded, not heaped, tablespoon or haversack spoon of the crystals is about an ounce.

The carbonate and persulphate act on the cupro-nickel fouling and dissolve it, coloring the "dope" deep blue. They will also attack the steel of the bore unless ammonia gas in the aqua ammonia is present.

The ammonia gas rapidly escapes unless the bottle is kept tightly corked. The "dope" becomes stale and loses the ammonia gas even when the bottle is kept over night; it should not be used after it has been mixed several days.

It should not be placed in a hot or warm barrel because the heat drives off the ammonia gas. When not convenient to wait for the barrel to cool off, it can be cooled by pumping cold water back and forth through the bore by means of a cleaning rod and rag.

The "dope" should not be allowed to remain in the bore over ten minutes, because the ammonia gas rapidly escapes. Five minutes is long enough, and then if fouling has not disappeared use fresh "dope."

Remember that if the ammonia gas is not present in the "dope" by reason of "dope" being stale, or put in a warm barrel or allowed to remain too long in barrel, the barrel will be instantly ruined. The steel will be vigorously attacked and eaten out by the carbonate and persulphate.

The "dope" should be made and its use supervised by a careful, experienced man. Bottles of stale "dope" must be emptied and not left carelessly around. It should not be mixed in larger quantities than the 12-ounce bottles.

To put it in bore, place a No. 2 cork in the chamber stopping up the breech end of the barrel, and place a piece of $\frac{3}{8}$ -inch rubber tube about 2 inches long over the muzzle. Then pour in "dope," being careful not to let it overflow. After pouring "dope" from rifle, be careful to thoroughly clean and dry the bore so that no carbonate or persulphate will adhere to the steel. Then if no more firing is to be done with the rifle during the day, oil the bore.

If the "dope" is spilled on the metal parts of the rifle, remove it immediately and oil, otherwise it will quickly cause rust.

"Doping" a rifle for metal fouling also removes the sticky acid fouling.

Hoppe's No. 9 slowly attacks metal fouling. It is an excellent material for leaving in bore when rifle is laid away. It also neutralizes the effects of "sweating" of acid fouling.

THE SWINGING (OR PENDULUM) TARGET.

On temporary ranges or when there is no time or means to instal regular target carriers, the swinging or pendulum target can be quickly prepared from the materials usually at hand and with unskilled labor. Hammer, saw and spades are all the tools required, and nails, rope (or wire), and some timber from woods or boards such as are usually found nearby in any locality are all the materials required. A party of men can put up the target described in a few hours. It is easy of operation, fast and generally satisfactory for temporary use. Moreover, it never gets out of repair. The ropes (or wire) on which the target frame is suspended are sometimes cut by a bullet, but if double ropes (or wires), each pair a few inches apart, are used where single ropes are shown in the diagram, this cutting of one of them will not interfere with the operation of the target. In practice a rope is rarely cut, and little inconvenience is experienced from this cause.

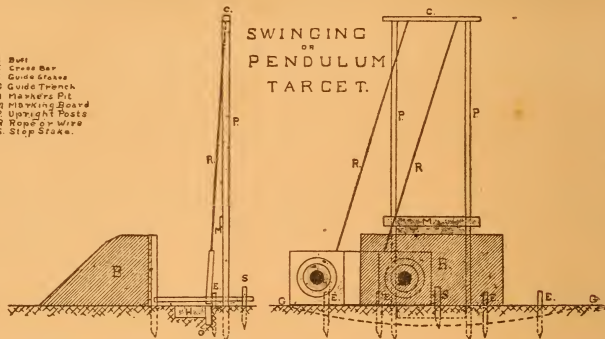
The upright posts (P) are either of round timber cut from the woods, or they may be 4 in. x 4 in. scantling. They should be at least 25 feet above the ground. The higher they are the more easily the target is operated. Cleats should be nailed on the rear side of one of them to facilitate climbing when it is necessary to fix the ropes. These posts may be guyed with wire to make them steadier, but if planted deep enough in the ground, it is not necessary to guy them. These posts are planted about 8 feet apart.

The butt should be about 16 feet wide and 8 feet high. It is made of earth revetted preferably with boards 2 inches thick, as shown in the diagram. The posts which support the board revettment may be round timber and should be deeply planted in the ground. At the top of the butt the earth should be no less than 4 feet thick. The sides of the butt should be revetted.

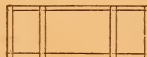
The markers' pit (H) should be about 18 inches deep, so that the markers may use the surrounding ground as a seat. In the diagram the markers' pit is 8 feet long and 4 feet wide; this gives a margin of safety behind the butt of 4 feet on each side. Markers, although allowed to sit on the edge of the pit, should be cautioned not to step outside of it during range firing.

B Bell
 C Cross Bar
 E Guide Groove
 G Guide Trench
 H Markers Pit
 M Marking Board
 P Upright Posts
 R Rope or Wire
 S Step Stake

SWINGING OR PENDULUM TARGET.



DETAIL OF FRAME



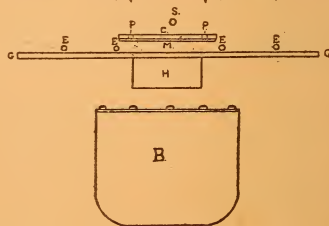
FRAME FOR TARGET A.



TARGET D ON FRAME.



TARGET C. (SINGLE.)



The guide trench (G) is a narrow trench which guides the target frame as it swings from one side to the other, and keeps the ropes clear of the upright posts. The depth of the trench is determined by experiment after the target frame is attached to the ropes. Guide stakes (E) may be used in the rear in addition to the guide trench.

To determine proper length of rope place the target in the position in which it will be fired upon, then fasten the ropes to the frame.

The target is pushed out and held in place by a man standing at (H) in the middle of markers' pit. He uses a stick and holds one end of it while the other end is held in place by a stake (S) driven in the ground. When he releases the target it swings with slight assistance to the other side of the butt, and the target which appears on that side is then in position. The value of the hit on the target now behind the butt is disked by a second man who uses a staff. He places the proper disk on the marking board (M) and thus does not interfere with the firer about to fire on the target in position. The location of the hits is shown by the use of spotters placed in the shot holes by a third man who also pastes the holes as soon as he removes the spotter. One man, if necessary, can perform the service in the pit, but three men give faster and more satisfactory service as fast as the firers can shoot.

The target frames each contain two targets, all the frames are 16 feet long, except the frame for the long range target which, if double, must be at least 24 feet long. It is better, however, to use a frame 16 feet long for the long range target, using only one target on the frame, and always pushing it out on the same side. The 24-foot frame is heavy, unwieldy and difficult to make strong. The frames are made of rough boards 3 inches or more wide. The frame should be a few inches wider than 6 feet so that when targets are pasted on there will be a part of the board frame below the target, and in the guide trench to prevent the wind from disturbing the target.

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